

December 21, 2015

Reference No. 086165-03-14

Mr. Phil Richard Wisconsin Department of Natural Resources 875 S 4th Avenue Park Falls, Wisconsin 54552

Dear Phil:

Re: Monthly Status Report – November 2015 Penta Wood Products Superfund Site Siren, Wisconsin

GHD Services Inc. (GHD) has prepared this monthly status report for the period of November 2015 for the Penta Wood Products Superfund Site (Site). The Site plan is shown on Figure 1. The project budget and costs are summarized in the following tables:

- Table 1 summarizes the overall project costs with a comparison of all costs (original purchase order scope of work plus change order revised scope of work) against the original purchase order budget.
- Table 2 summarizes Phase 02 (GHD accounting phase) costs associated with the original purchase order and scope of work.
- Table 3 summarizes Phase 03 (GHD accounting phase) costs associated with the change order and revised scope of work (November 2015 through December 2016).
- Table 4 sumarizes Phase 04 (GHD accounting phase) costs associated with the change order and revised scope of work (January 2017 through December 2017)

1. Progress Made This Reporting Period

Phase 02-Task 01 Routine groundwater extraction and treatment, LNAPL recovery and bioventing system operation, equipment maintenance and repair

- The following tasks were completed as part of the routine remediation system operation, monitoring, and maintenance:
 - Operating, monitoring, and maintaining the groundwater and LNAPL extraction remediation system at pumping rates as summarized in Table 5
 - Backwashing the "pre-filter" granular activated carbon (GAC) unit
 - Changing bag filters



- Collecting compliance water samples and coordinating laboratory analyses as summarized in Table 6
- Other work completed included:
 - Project management and coordination
 - Preparing and submitting the Wastewater Discharge Monitoring Long Report for October 2015
 - Measuring groundwater and LNAPL levels in the unconfined (upper level) extraction wells and manually recovering LNAPL as summarized in Table 7
 - Providing notification with a corrective action to WDNR regarding a non-compliance associated with the remediation system water treatment system discharge
- LNAPL recovery was performed in the unconfined extraction wells containing LNAPL. LNAPL skimming pumps were utilized in two extraction wells (EW06 and EW10) containing significant amounts of LNAPL. Manual bailing was performed to recover LNAPL in the remaining extraction wells containing LNAPL (EW05, EW12, and EW14). LNAPL was not detected in the remaining extraction wells (EW02, EW04, and EW13). LNAPL recovery data is summarized in Table 7.
- The Long-Term Response Action Operation and Maintenance Plan Addendum No. 1 was finalized.
- The groundwater extraction and treatment system was shut down on November 23, 2015 to initiate the remediation system shutdown pilot study as conditionally approved by the United States Environmental Protection Agency (USEPA) in a letter dated November 17, 2015.GHD subcontractor costs/invoices included under Task 01 of this invoice:
 - General trash disposal (October 2015, Republic Services)

Phase 02-Task 02 Waste characterization and coordination (groundwater, LNAPL, GAC, filter cake)

No costs were billed to this task in the current invoice.

Phase 02-Task 03 Waste disposal

No costs were billed to this task in the current invoice.

Phase 02-Task 04 Housekeeping and grounds keeping (building, access roads, paths,CAMU, etc.)

Housekeeping tasks were completed in the building.

Phase 02-Task 05 Monthly bioventing and soil gas monitoring (17 wells)

- No costs were billed to this task in the current invoice.
- The biovent system was not operated in November 2015, in accordance with normal protocol. The biovent system will remain off during the pilot study.

Phase 02-Task 06 Treatment system influent sampling and analysis (monthly, PCP)

- The monthly influent sample was collected on November 2, 2015 for laboratory analysis of pentachlorophenol (PCP). The analytical data is summarized in Table 6. Influent PCP was detected at a concentration of 1,100 micrograms per liter (μg/L). The laboratory report is included in Attachment A.
- A water sample was collected from the effluent of the lead carbon unit on November 2, 2015 to
 determine whether a carbon exchange was required. PCP was detected at a concentration of
 2.7 μg/L indicating that a carbon exchange was not necessary at that time. The analytical data is
 summarized in Table 6. The laboratory report is included in Attachment A.
- This invoice includes laboratory analytical costs for influent sampling conducted on November 2, 2015. Labor associated with the sampling is billed under Phase 02-Task 01, consistent with the project budget.

Phase 02-Task 07 Treatment system effluent sampling and analysis (weekly, PCP)

- The weekly effluent samples were collected on November 2, 10, and 17, 2015 for laboratory analysis of PCP. The analytical data is summarized in Table 6. The average effluent PCP concentration of 0.116 μg/L during November 2015 slightly exceeded the substantive WPDES permit limit of 0.1 μg/L. The laboratory reports are included in Attachment A.
- This invoice includes laboratory analytical costs for effluent samples collected on October 19 and 27, 2015 and November 2, 10, and 17, 2015. Labor associated with the sampling is billed under Phase 02-Task 01, consistent with the project budget.

Phase 02-Task 08 Treatment system effluent sampling and analysis (monthly, WI-DRO, naphthalene)

- A monthly effluent sample was collected on November 2, 2015 for laboratory analysis of
 Wisconsin-Diesel Range Organics (WI-DRO) and naphthalene. The analytical data is summarized
 in Table 6. The data indicate that the system treated and discharged water in compliance with the
 substantive WPDES permit limits for naphthalene and WI-DRO. The laboratory report is included
 in Attachment A.
- This invoice includes laboratory analytical costs associated with the effluent sample collected on the November 2, 2015. Labor associated with the sampling is billed under Phase 02-Task 01, consistent with the project budget.

Phase 02-Task 09 Treatment system effluent sampling and analysis (quarterly, metals,chloride)

- Quarterly effluent sampling and analysis was not required in November 2015.
- This invoice includes laboratory analytical costs associated with the effluent sample collected on the October 19, 2015.

Phase 02-Task 10 Treatment system effluent sampling and analysis (annually, BTEX, phenol, dioxin)

 No costs were billed to this task in the current invoice. Annual effluent sampling and analysis was not required in November 2015.

Phase 02-Task 11 Semiannual groundwater and LNAPL level monitoring

No costs were billed to this task in the current invoice. Groundwater and LNAPL level monitoring
as part of the semiannual groundwater sampling events was not required in November 2015.

Phase 02-Task 12 Annual groundwater monitoring well sampling (15 wells for PCP, BTEX, naphthalene, TAL metals, and natural attenuation indicator parameters)

 Annual groundwater sampling was not required in November 2015. The annual groundwater sample analytical data from October 2015 was evaluated.

Phase 02-Task 13 Semiannual groundwater monitoring well sampling (5 wells for PCP, BTEX, naphthalene, TAL metals, and natural attenuation indicator parameters)

 No costs were billed to this task in the current invoice. Semiannual groundwater sampling was not required in November 2015.

Phase 02-Task 14 Semiannual residential well sampling (6 private wells and onsite water supply well for PCP, BTEX and naphthalene)

Notification letters were issued to the residents providing the sampling results from October 2015..

Phase 02-Task 15 Semi-annual reporting

 Portions of the Semiannual Report were prepared for the period between July and December 2015.

Phase 02-Task 16 Monthly status reporting

- The Monthly Status Report October 2015 was prepared and subsequently submitted on December 1, 2015.
- GHD participated in the monthly project status conference call with WDNR and USEPA on November 23, 2015.
- The October 2015 Wastewater Discharge Monitoring Long Report was prepared and submitted electronically in the WDNR Web Access Management System (WAMS) on November 20, 2015.

Phase 02-Task 17 Regulatory Communications

No costs were billed to this task in the current invoice.

Phase 02-Task 18 Site Safety Plan

No costs were billed to this task in the current invoice.

Phase 02-Task 19 Site QA/QC Plan

No costs were billed to this ask in the current invoice.

Phase 02-Task 20 Alternate remedy recommendation

• A conference call was held with WDNR, USEPA, and GHD on November 5, 2015 to discuss USEPA's preliminary comments on the Draft Remediation System Shutdown Pilot Study Work Plan, which primarily included a developing a baseline groundwater sampling scope of work, a bio-trap study, a contingency plan for restarting the remediation system, and a pilot study schedule. The work plan was subsequently revised to address USEPA's comments and a draft work plan resubmitted on November 13, 2015.

Phase 02-Task 21 WPDES permit update

No costs were billed to this task in the current invoice.

Phase 02-Task 22 Heating/ventilation system repairs

No costs were billed to this ask in the current invoice.

Phase 02-Task 23 Well repairs and surveying

No costs were billed to this task in the current invoice.

Phase 03-Task 01 Well repairs

 Well repairs were completed between November 23 and December 1, 2015. A summary of completed well repairs is included in Table 8. The drilling subcontractor costs will be included with a subsequent invoice.

Phase 03-Task 02 Drilling and well installation

 Drilling and well installation of monitoring wells MW29, MW30, and MW31 and drilling of borehole SB1 and was completed between November 23 and December 2, 2015.

Phase 03-Task 03 System decommissioning

 Work was completed in preparation of the remediation system decommissioning and cleaning activities scheduled to begin in January 2016.

Phase 03-Task 04 Site safety plan

Work was completed to update of the site-specific health and safety plan.

Phase 03-Task 05 Site QA/QC plan

No costs were billed to this task in the current invoice.

Phase 03-Task 06 Waste characterization

No costs were billed to this task in the current invoice.

Phase 03-Task 07 Waste disposal

No costs were billed to this task in the current invoice.

Phase 03-Task 08 Housekeeping and grounds keeping

No costs were billed to this task in the current invoice.

Phase 03-Task 09 Quarterly groundwater/LNAPL level monitoring

 No costs were billed to this task in the current invoice. The next quarterly groundwater/LNAPL level monitoring event is scheduled to be conducted during April 2016

Phase 03-Task 10 Baseline groundwater well sampling

 No costs were billed to this task in the current invoice. Baseline groundwater well sampling is scheduled to be conducted during April 2016.

Phase 03-Task 11 Quarterly groundwater well sampling

 No costs were billed to this task in the current invoice. The next quarterly groundwater well sampling event is scheduled to be conducted in July 2016.

Phase 03-Task 12 Semiannual Residential Well Sampling

 No costs were billed to this task in the current invoice. The next semiannual residential well sampling event is scheduled to be conducted in April 2016.

Phase 03-Task 13 Quarterly reporting

 No costs were billed to this task in the current invoice. A semiannual report will be submitted in January 2016 to document the period between July and December 2015.

Phase 03-Task 14 Monthly Reporting

No costs were billed to this task in the current invoice.

Phase 03-Task 15 Regulatory communications

No costs were billed to this task in the current invoice.

Phase 03-Task 16 Microcosm and bio-trap study

Soil samples were collected from boreholes SB1 and MW29 for the microcosm study. A
groundwater sample was also collected from borehole SB1 for the microcosm study. A
groundwater sample will be collected from well MW29 during April 2016 for the microcosm study.
The bio-trap study is scheduled to begin during April 2016.

Phase 03-Task 17 Shallow soil and sediment investigation

No costs were billed to this task in the current invoice.

Phase 04-Tasks 01 through 09

No costs will be billed to these tasks until 2017.

Problems Resolved

• A written report was submitted to WDNR and USEPA on December 1, 2015 discussing the water treatment system discharge non-compliance and a corrective action. The groundwater extraction system was shut down on November 23, 2015, as approved by the USEPA to begin the remediation system shutdown pilot study. The system is expected to remain temporarily shutdown through 2019 during the pilot study. If the pilot study results are favorable, WDNR will request that the USEPA authorize that the system remain shutdown permanently. If the system is required to be restarted, the corrective action will include installing new granular activated carbon into all of the treatment vessels at the facility. Subsequent compliance sample analytical data would be evaluated to assess other potential system adjustments are appropriate to comply with the substantive permit requirements.

Problem Areas and Recommended Solutions

- Minor staining/discoloration, which may indicate the start of corrosion, was observed on the top
 and bottom welds of the carbon vessels during the carbon exchange in January 2015. No repairs
 were required. A thorough inspection of the carbon vessel interior lining will be conducted when
 the carbon is removed during January 2016.
- The motor that operates the gas-fired furnace to heat the building is inoperable and requires repair. Since the remediation system will not operate for the foreseeable future, furnace repairs/replacement will not be completed.
- The groundwater extraction pump in extraction well EW03 stopped operating during
 February 2015. The pump was removed during December 2015 and significant pitting in the riser
 piping and pump connection was observed. If future corrective actions indicate additional pumping
 is required, the riser piping will be replaced.

4. Deliverables Submitted

- Long-Term Response Action Operation and Maintenance Plan Addendum No. 1 (November 9, 2015)
- Draft Remediation System Shut Down Pilot Study Work Plan (November 13, 2015)
- October 2015 Wastewater Discharge Monitoring Long Report (November 20, 2015)
- Residential Well Sampling Results letters (November 20, 2015)

- Monthly Status Report October 2015 (December 1, 2015)
- Remediation System Water Treatment Discharge Non-Compliance (December 1, 2015)

5. Activities Planned Next Reporting Period

- Prepare and submit the Monthly Status Report December 2015.
- Participate in the monthly status conference call.
- Update the Site Safety Plan.
- Survey top of casing elevations at all wells,
- Complete system decommissioning
- Complete waste characterization, profiling, and disposal

6. Key Personnel Changes

Personnel changes were not necessary.

7. Subcontractor Services

GHD has retained the following subcontractors to provide services at the Site:

- North Shore Environmental Construction, Inc. system decommissioning and waste management and disposal
- Maurer Power potential remediation system electrical repair/service
- Evoqua Water Treatment Technologies LLC carbon supply and change out
- Alar Chemical Sales diatomaceous earth supply
- Applied Air Systems air compressor routine service and potential repairs
- Anderson Pump and Process bag filter supply
- A-1 Septic septic tank service
- Austin Lake Landscaping mowing
- Republic Services trash disposal
- Moritz's Lawn Care snow plowing
- Vadose Remediation Technologies absorbent polymer sheeting supply to line spent carbon sacks
- HC Building Inspection Services building inspection to evaluate heating system efficiency
- Field Environmental Instruments, Inc. environmental field equipment supply
- Nardini Fire Equipment Co., Inc. fire extinguisher inspection

- C3D Testing Company backflow preventer inspection
- FCX Performance extraction well flow meter supplies (O-rings)
- Cascade Drilling, LP installation of additional monitoring wells
- Signarama No trespassing signage for site

8. Travel

To/from the Site for remediation system operation and modification

Laboratories

 GHD submitted all samples in November 2015 to TestAmerica Laboratories in North Canton, Ohio and Pittsburgh, Pennsylvania.

10. Project Performance

- Compliance sampling indicated that the November 2015 monthly average PCP effluent concentration was slightly above the substantive WPDES discharge permit limit.
- With the exception of two minor remediation system shutdowns due to power outages, the daily groundwater extraction rates were maintained at approximately 28 gallons per minute (gpm).
- Approximately 11.0 gallons of LNAPL were recovered during November 2015. A total of approximately 380.7 gallons of LNAPL have been recovered since the system modification in October 2014.

Should you have questions, please do not hesitate to contact us.

Sincerely,

GHD

Tim Ree

TB/sb/23

Encl.

cc: Judy Fassbender, WDNR Madison (via email)

David Swimm, WDNR Madison (via email)

John Robinson, WDNR Wausau (via email)

Gary Edelstein, WDNR Madison (via email)

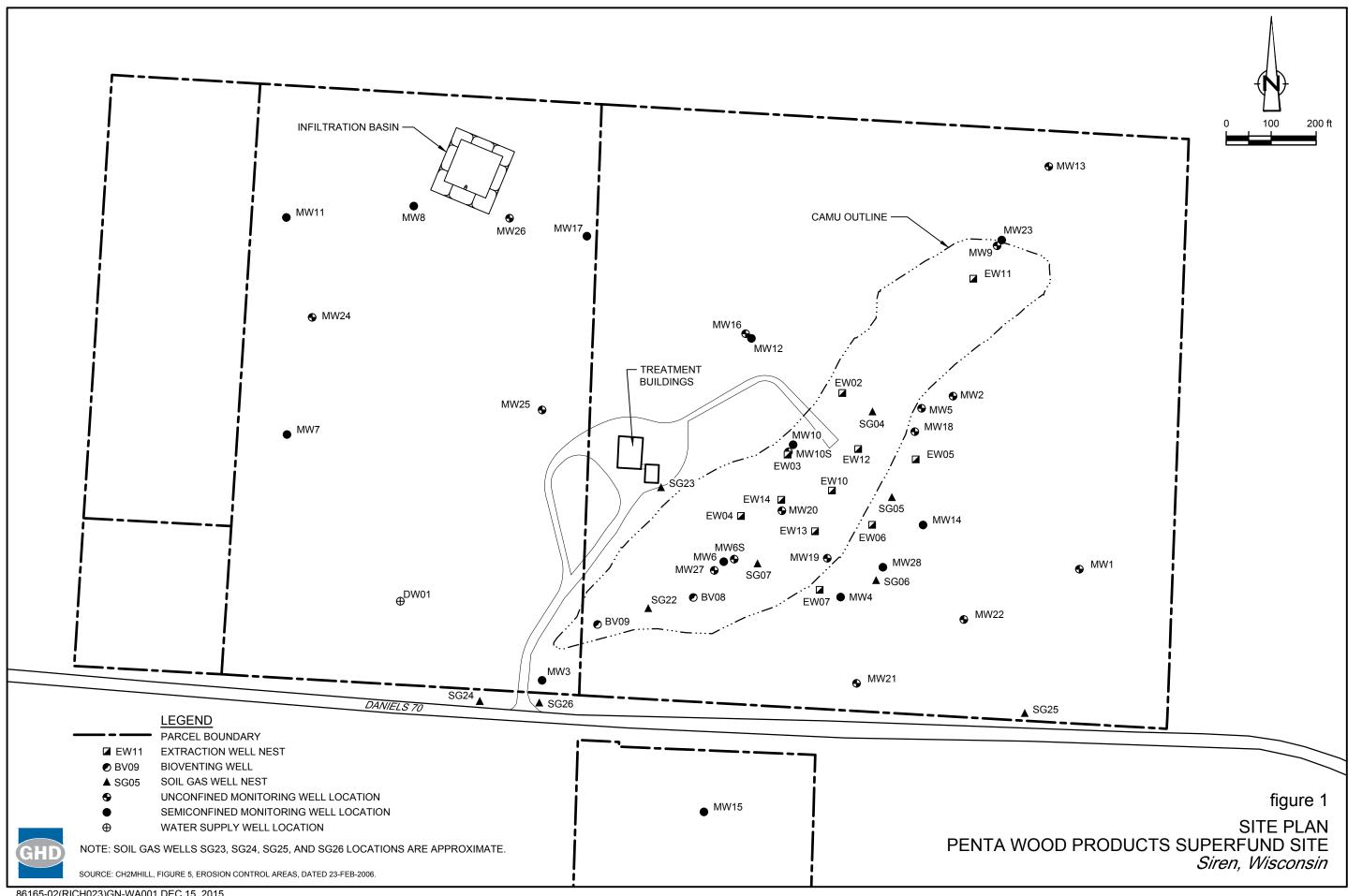
Tim Panzer, WDNR Madison (via email)

Ron Frehner, GHD (via email)

Brian Sandberg, GHD (via email)

Pete Storlie, GHD (via email)

Linda Martin, USEPA (via email)



Budget Summary Penta Wood Products Superfund Site Siren, Wisconsin

GHD Project Number 086165

Purchase Order

Phase Description Purchase Order Budget

O2 Purchase Order (Table 2) \$ 1,271,421.94

Purchase Order Total \$ 1,271,421.94

Project Costs	Proj	ect	Costs
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Inv	Current roice Cost through /29/2015)	In	Previous voiced Cost	 Total voiced Cost (through 1/29/2015)	Purchase Order Budget Remaining (through 11/29/2015)					
\$	24,607.79	\$	142,198.11	\$ 166,805.90	\$	1,104,616.04				
\$	24,607.79	\$	142,198.11	\$ 166,805.90	\$	1,104,616.04				

Change Order

Phase	Description	Ch	ange Order Budget
03	2015-2016 Change Order (Table 3)	\$	751,912.27
04	2017 Change Order (Table 4)	\$	140,152.84

Project	Costs
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lnv (Current voice Cost through //29/2015)	 vious ed Cost	(Total oiced Cost (through 1/29/2015)	F	nange Order Budget Remaining (through 1/29/2015)
\$	9,143.53	\$ -	\$	9,143.53	\$	742,768.74
\$	-	\$ -	\$	-	\$	140,152.84
\$	9,143.53	\$ -	\$	9,143.53	\$	882,921.58

TOTAL BUDGET STATUS 1	\$	1,271,421.94
	ı	

Change Order Total

\$ 33,751.32	\$	142,198.11	\$	175,949.43	\$	1,095,472.51
	I		1		l	

Note:

1 The total change order budget is less that the original purchase order budget. For overall project budget tracking purposes, the combined costs for work completed under the original purchase order and the revised scope of work completed under the change order are compared against the original purchase order budget.

892,065.11

\$

Purchase Order Budget Summary Penta Wood Products Superfund Site Siren, Wisconsin

GHD Project Number 086165 Phase 02 - August 1, 2015 - July 31, 2017

Annual Tasks Purchase Order Budget Project Costs Purchase Order Estimated Previous Annual **Purchase Order** Current Total Budget Task Description Unit Quantity **Unit Cost Annual Budget** Budget Invoice Cost Invoiced Cost **Invoiced Cost** Remaining (8/1/2015-(through (through (through 7/31/2017) 11/29/2015) 11/29/2015) 11/29/2015) 01 Routine O&M Labor hours/rate estimated \$ 319,744.46 \$ 319,744.46 \$ 639,488.92 16,274.74 \$ 62,841.36 \$ 79,116.10 \$ 560,372.82 material equipment and rental costs and travel Labor hours/rate estimated 9,064.00 \$ 9,064.00 \$ 18,128.00 \$ 18,128.00 Waste characterization \$ material equipment and rental costs and travel 03 Waste disposal \$ 91,200.36 \$ 91,200.36 \$ 182,400.72 \$ 182,400.72 Costs plus markup 04 Housekeeping and grounds Labor hours/rate estimated \$ 17,889.60 \$ 17,889.60 \$ 35,779,20 39.75 \$ 1,960.00 \$ 1,999.75 \$ 33,779,45 keeping material equipment and rental costs and travel 05 Monthly soil gas monitoring 3,286.80 \$ 23,007.60 \$ 46,015.20 5,525.48 \$ 5,525.48 \$ 40,489.72 Each round 06 Treat syst inf (PCP) Each round 24 99.23 \$ 2,381.40 \$ 4.762.80 189.00 \$ 567.00 \$ 756.00 \$ 4.006.80 07 Treat syst eff (PCP) 226.73 \$ 11,789.70 \$ 23,579.40 52 898.61 \$ 2,798.10 \$ 3,696.71 \$ 19,882.69 Each round 08 Treat syst eff (DRO, naphthalene) Each round 12 132.30 \$ 1,587.60 \$ 3,175.20 126.00 \$ 378.00 \$ 504.00 \$ 2,671.20 09 Treat syst eff (metals, chloride) Each round 194.70 \$ 778.80 \$ 1,557.60 64.05 \$ \$ 64.05 \$ 1,493.55 10 Treat syst eff (BTEX, phenol, Each round 495.60 \$ 495.60 \$ 991.20 991.20 \$ dioxin) 11 Semi-annual GW/LNAPL level Each round 2 894.00 \$ 1.788.00 \$ 3.576.00 \$ 746.25 \$ 746.25 \$ 2.829.75 monitoring 12 Annual GW well sampling \$ 20,284.30 \$ 20,284.30 \$ 20,228.08 \$ Each round 40,568.60 633.75 \$ 19,594.33 \$ 20,340.52

Purchase Order Budget Summary Penta Wood Products Superfund Site Siren, Wisconsin

GHD Project Number 086165 Phase 02 - August 1, 2015 - July 31, 2017

Annua	l Tasks		Purchase Order E						udget				Projec	sts			
Task	Description	Unit	Estimated Annual Quantity	ι	Jnit Cost	Anr	nual Budget	:	rchase Order Budget (8/1/2015- 7/31/2017)	Inv	Current roice Cost through /29/2015)		Previous oiced Cost		Total voiced Cost (through		rchase Order Budget Remaining (through 11/29/2015)
13	Semi-annual GW well sampling	Each round	1	\$	8,511.20	\$	8,511.20		17,022.40	\$	-	\$	-	\$	-	\$	17,022.40
14	Semi-annual residential well sampling	Each round	2	\$	5,388.18	\$	10,776.35	\$	21,552.70	\$	321.50	\$	5,067.13	\$	5,388.63	\$	16,164.07
15	Semi-annual reporting	Each	2	\$	8,282.00	\$	16,564.00	\$	33,128.00	\$	162.50	\$	1,073.50	\$	1,236.00	\$	31,892.00
16	Monthly status reporting	Each	12	\$	3,523.83	\$	42,286.00	\$	84,572.00	\$	3,610.51	\$	9,176.82	\$	12,787.33	\$	71,784.67
17	Regulatory communications	Pre-approved and determined by DNR	1	\$	15,000.00	\$	15,000.00	\$	30,000.00	\$	-	\$	-	\$	-	\$	30,000.00
18	Site Safety Plan	Estimated cost not to exceed	1	\$	1,942.00	\$	1,942.00	\$	3,884.00	\$	-	\$	275.50	\$	275.50	\$	3,608.50
19	Site QA/QC Plan	Estimated cost not to exceed	1	\$	4,200.00	\$	4,200.00	\$	8,400.00	\$	-	\$	-	\$	-	\$	8,400.00
			Annual T	asks	Subtotal	\$	599,290.97	\$	1,198,581.94	\$	22,320.41	\$	110,003.47	\$	132,323.88	\$	1,066,258.06
Additio	onal Tasks																
20	Alternate remedy recommendation ¹	Estimated cost not to exceed	1	\$	27,750.00			\$	27,750.00	\$	2,287.38	\$	28,408.51	\$	30,695.89	\$	(2,945.89)
21	WPDES permit updates	Estimated cost not to exceed	1	\$	3,288.00			\$	3,288.00	\$	-	\$	-	\$	-	\$	3,288.00
22	Heating/ventilation system repairs	Labor, material, and contractor costs	1	\$	20,752.00			\$	20,752.00	\$	-	\$	1,787.50	\$	1,787.50	\$	18,964.50
23	Well repairs	Labor, material, and contractor costs	1	\$	21,050.00			\$	21,050.00	\$	-	\$	1,998.63	\$	1,998.63	\$	19,051.37
	1	1	Ad	lditio	nal Tasks S	Subto	otal	\$	72,840.00	\$	2,287.38	\$	32,194.64	\$	34,482.02	\$	38,357.98
			PURCHASE ORDER TOTAL			\$	1,271,421.94	\$	24,607.79	\$	142,198.11	\$	166,805.90	\$	1,104,616.04		

Notes:

¹ Task 20 unit price estimated to increase by \$3,000.00 due to additional work associated with evaluating existing monitoring well network, proposing additional well locations, confirming field locations; developing a microcosm and bio-trap study work plan; assessing microbial biological tools (BMTs) and environmental molecular diagnostics (EMDs).

2015-2016 Change Order Budget Summary Penta Wood Products Superfund Site Siren, Wisconsin

GHD Project Number 086165 Phase 03 - November 1, 2015 - December 31, 2016

Project Costs

							Projec	t Costs	
Task	Description	Unit	Estimated Quantity			Current Invoice Cost (through 11/29/2015)	Previous Invoiced Cost	Total Invoiced Cost (through 11/29/2015)	Change Order Budget Remaining (through 11/29/2015)
01	Well repairs	Lump sum	1	\$ 20,663.30	\$ 20,663.30	\$ 2,109.75	\$ -	\$ 2,109.75	\$ 18,553.55
02	Drilling and well installation	Lump sum	1	\$ 63,369.90	\$ 63,369.90	\$ 4,228.51	\$ -	\$ 4,228.51	\$ 59,141.39
03	System decommissioning	Lump sum	1	\$ 82,778.80	\$ 82,778.80	\$ 510.75	\$ -	\$ 510.75	\$ 82,268.05
04	Site safety plan	Plan	1	\$ 3,372.50	\$ 3,372.50	\$ 838.03	\$ -	\$ 838.03	\$ 2,534.47
05	Site QA/QC plan	Plan	1	\$ 6,829.50	\$ 6,829.50	\$ -	\$ -	\$ -	\$ 6,829.50
06	Waste characterization	Lump sum	1	\$ 20,810.00	\$ 20,810.00	\$ -	\$ -	\$ -	\$ 20,810.00
07	Waste disposal	Lump sum	1	\$ 173,149.00	\$ 173,149.00	\$ -	\$ -	\$ -	\$ 173,149.00
08	Housekeeping and grounds keeping	Lump sum	1	\$ 16,545.30	\$ 16,545.30	\$ -	\$ -	\$ -	\$ 16,545.30
09	Quarterly groundwater/LNAPL level monitoring	Event	4	\$ 3,471.65	\$ 13,886.60	\$ -	\$ -	\$ -	\$ 13,886.60
10	Baseline groundwater well sampling	Event	1	\$ 74,916.75	\$ 74,916.75	\$ -	\$ -	\$ -	\$ 74,916.75

2015-2016 Change Order Budget Summary Penta Wood Products Superfund Site Siren, Wisconsin

GHD Project Number 086165 Phase 03 - November 1, 2015 - December 31, 2016

Project Costs

Task	Description	Unit	Estimated Quantity			Budget		Current Invoice Cost (through 11/29/2015)	Previous Invoiced Cost		Total nvoiced Cost (through 11/29/2015)	F	nange Order Budget Remaining (through 1/29/2015)
11	Quarterly groundwater well sampling	Event	3	\$	26,278.28	\$ 78,834.84		\$ -	\$ -	\$	-	\$	78,834.84
12	Semiannual residential well sampling	Event	2	\$	4,194.89	\$ 8,389.78		\$ -	\$ -	\$	-	\$	8,389.78
13	Quarterly reporting	Report	4	\$	8,339.00	\$ 33,356.00		\$ -	\$ -	\$	-	\$	33,356.00
14	Monthly reporting	Report	14	\$	2,792.65	\$ 39,097.10		\$ -	\$ -	\$	-	\$	39,097.10
15	Regulatory communications	Pre-approved and determined by DNR	1	\$	15,000.00	\$ 15,000.00		\$ -	\$ -	\$	-	\$	15,000.00
16	Microcosm and bio-trap study	Lump sum	1	\$	45,793.40	\$ 45,793.40		\$ 1,456.49	\$ -	\$	1,456.49	\$	44,336.91
17	Shallow soil and sediment investigation	Pre-approved and determined by DNR	1	\$	55,119.50	\$ 55,119.50		\$ -	\$ -	\$	-	\$	55,119.50
	ı	1	2015-2016 CHANGE ORDER TOTAL		\$ 751,912.27		\$ 9,143.53	\$ -	\$	9,143.53	\$	742,768.74	

2017 Change Order Budget Summary Penta Wood Products Superfund Site Siren, Wisconsin

GHD Project Number 086165 Phase 04 - January 1, 2017 - December 31, 2017

Project Costs

Task	Description	Unit	Estimated Quantity	1	Unit Cost	Budget	Current nvoice Cost (through	Previous voiced Cost	Total voiced Cost (through 1/29/2015)	ı	nange Order Budget Remaining (through 11/29/2015)
01	Site safety plan	Plan	1	\$	1,310.50	\$ 1,310.50	\$ -	\$ -	\$ -	\$	1,310.50
02	Site QA/QC plan	Plan	1	\$	2,098.00	\$ 2,098.00	\$ -	\$ -	\$ -	\$	2,098.00
03	Housekeeping and grounds keeping	Lump sum	1	\$	15,381.60	\$ 15,381.60	\$ -	\$ -	\$ -	\$	15,381.60
04	Quarterly groundwater/LNAPL level monitoring	Event	4	\$	3,471.60	\$ 13,886.40	\$ -	\$ -	\$ -	\$	13,886.40
05	Semiannual groundwater well sampling	Event	2	\$	26,278.28	\$ 52,556.56	\$ -	\$ -	\$ -	\$	52,556.56
06	Semiannual residential well sampling	Event	2	\$	4,194.89	\$ 8,389.78	\$ -	\$ -	\$ -	\$	8,389.78
07	Semiannual reporting	Report	2	\$	6,201.00	\$ 12,402.00	\$ -	\$ -	\$ -	\$	12,402.00
08	Monthly reporting	Report	12	\$	1,594.00	\$ 19,128.00	\$ -	\$ -	\$ -	\$	19,128.00
09	Regulatory communications	Pre-approved and determined by DNR	1	\$	15,000.00	\$ 15,000.00	\$ -	\$ -	\$ -	\$	15,000.00
			CHANGE	2017 ORD		\$ 140,152.84	\$ -	\$ -	\$ -	\$	140,152.84

Table 5

Groundwater Extraction Summary Penta Wood Products Superfund Site Siren, Wisconsin

	5	Average Daily Pumping	
Data	Pumping Volume	Rate	Comments
Date	(gallons)	(gallons per minute)	Comments
11/1/2015	43,020	30	
11/2/2015	41,274	29	
11/3/2015	41,469	29	
11/4/2015	41,350	29	
11/5/2015	42,418	29	
11/6/2015	41,354	29	
11/7/2015	41,396	29	
11/8/2015	41,207	29	
11/9/2015	41,002	28	
11/10/2015	39,414	27	
11/11/2015	41,393	29	
11/12/2015	41,177	29	
11/13/2015	40,336	28	
11/14/2015	13,598	9	System shutdown due to power outage
11/15/2015	0	0	
11/16/2015	0	0	
11/17/2015	22,468	16	System restarted after power outage shutdown
11/18/2015	33,846	24	
11/19/2015	41,471	29	
11/20/2015	41,658	29	
11/21/2015	41,364	29	
11/22/2015	41,113	29	
11/23/2015	15,422	11	System shut down to initiate the pilot study

Groundwater Extraction System Influent and Effluent Analytical Data Penta Wood Products Superfund Site Siren, Wisconsin

Sample Date	ந் Pentachlorophenol	n T Naphthalene	в Т WI DRO (С10-С28)	n 7 Arsenic	ug/L	ug/L	n T Manganese	o Zinz ug/L	mg/L
Groundwater Influent Sam	ple								
11/2/2015	1100	NA	NA	NA	NA	NA	NA	NA	NA
Groundwater Lead GAC Ef	1							T	
11/2/2015	2.7	NA	NA	NA	NA	NA	NA	NA	NA
Groundwater Effluent Sam	ple								
11/2/2015	0.14	<0.069	<0.051	NA	NA	NA	NA	NA	NA
11/10/2015	0.047 J	NA	NA	NA	NA	NA	NA	NA	NA
11/17/2015	0.16	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

ug/L
 Concentrations listed with units of micrograms per liter
 Concentrations listed with units of milligrams per liter

Less than symbol indicates the analand was not detected above the reporting limit

WI DRO - Wisconsin Diesel Range Organics

NA - Not analyzed

J - Data qualifier indicates concentration was estimatedB - Compound was found in the blanke and sample

Table 7

		Depth to Water	Depth to LNAPL	LNAPL Thickness	Recovered LNAPL Volume	
Well ID	Date	(feet) 1	(feet) 1	(feet)	(gallons)	Comments
EW02	2/18/2015	97.51	NP	0.00	NA	Groundwater extraction rate increased to 10 gpm
EW02	2/20/2015	97.52	NP	0.00	NA	
EW02	2/24/2015	97.59	NP	0.00	NA	
EW02	3/10/2015	97.67	NP	0.00	NA	
EW02	3/24/2015	97.76	NP	0.00	NA	
EW02	4/10/2015	97.79	NP	0.00	NA	
EW02	4/16/2015	97.76	NP	0.00	NA	
EW02	5/8/2015	97.77	NP	0.00	NA	Groundwater extraction rate increased to 12 gpm on 4/30/2015
EW02	5/21/2015	97.89	NP	0.00	NA	
EW02	6/3/2015	97.92	NP	0.00	NA	
EW02	6/16/2015	97.99	NP	0.00	NA	
EW02	7/8/2015	98.12	NP	0.00	NA	
EW02	7/21/2015	98.11	NP	0.00	NA	
EW02	7/29/2015	98.11	NP	0.00	NA	Groundwater extraction rate increased to 13.5 gpm
EW02	8/5/2015	98.18	NP	0.00	NA	
EW02	8/19/2015	98.11	NP	0.00	NA	
EW02	9/4/2015	97.83	NP	0.00	NA	
EW02	9/21/2015	97.76	NP	0.00	NA	
EW02	10/8/2015	97.72	NP	0.00	NA	
EW02	10/22/2015	97.64	NP	0.00	NA	
EW02	11/2/2015	97.58	NP	0.00	NA	
EW02	11/23/2015	NM	NM	NM	NA	Groundwater extraciton pump turned off for pilot study
			Total L	NAPL Recovered	0.0	

Table 7

Well ID	Date	Depth to Water (feet) ¹	Depth to LNAPL (feet) ¹	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW04	11/4/2014	114.30	NP	0.00	NA	
EW04	12/11/2014	115.39	NP	0.00	NA	
EW04	12/23/2014	115.34	NP	0.00	NA	Groundwater extraction system shutdown pending carbon change-out
EW04	12/30/2014	115.26	NP	0.00	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW04	1/8/2015	115.22	NP	0.00	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW04	1/19/2015	115.23	NP	0.00	NA	Groundwater extraction system restarted after carbon change-out
EW04	1/22/2015	115.36	NP	0.00	NA	
EW04	1/30/2015	115.47	NP	0.00	NA	
EW04	2/3/2015	115.48	NP	0.00	NA	
EW04	2/13/2015	115.51	NP	0.00	NA	
EW04	2/17/2015	115.48	NP	0.00	NA	Groundwater extraction rate increased to 10 gpm
EW04	2/18/2015	115.51	NP	0.00	NA	
EW04	2/20/2015	115.43	NP	0.00	NA	
EW04	2/24/2015	115.53	NP	0.00	NA	
EW04	3/10/2015	115.58	NP	0.00	NA	
EW04	3/24/2015	115.67	NP	0.00	NA	
EW04	4/10/2015	115.69	NP	0.00	NA	
EW04	4/16/2015	115.69	NP	0.00	NA	
EW04	5/8/2015	115.69	NP	0.00	NA	Groundwater extraction rate increased to 12 gpm on 4/30/2015
EW04	5/21/2015	115.74	NP	0.00	NA	
EW04	6/3/2015	115.75	NP	0.00	NA	
EW04	6/16/2015	115.82	NP	0.00	NA	
EW04	7/8/2015	115.93	NP	0.00	NA	
EW04	7/21/2015	115.92	NP	0.00	NA	
EW04	7/29/2015	115.91	NP	0.00	NA	Groundwater extraction rate increased to 13.5 gpm
EW04	8/5/2015	115.97	NP	0.00	NA	
EW04	8/19/2015	115.95	NP	0.00	NA	
EW04	9/4/2015	115.78	NP	0.00	NA	
EW04	9/21/2015	115.61	NP	0.00	NA	
EW04	10/8/2015	115.58	NP	0.00	NA	
EW04	10/22/2015	115.58	NP	0.00	NA	
EW04	11/2/2015	115.45	NP	0.00	NA	
EW04	11/23/2015	NM	NM	NM	NA	Groundwater extraciton pump turned off for pilot study
			Total L	NAPL Recovered	0.0	

Table 7

Well D Date Ceet			Depth to Water	Depth to LNAPL	LNAPL Thickness	Recovered LNAPL Volume	
EW05 11/6/2014 NM	Well ID	Date	(feet) 1	(feet) 1	(feet)	(gallons)	Comments
EW05	EW05	11/4/2014	83.35	83.25	0.10	NA	
EW05	EW05	11/6/2014	NM	NM	NM	<0.1	
EWGS	EW05	11/7/2014	91.51	91.44	0.07	NA	
EW05	EW05	11/11/2014	91.75	91.56	0.19	NA	
EW05 121/2014 91.58 91.51 0.04 NA EW05 121/21014 91.55 91.51 0.04 NA EW05 121/21014 91.55 91.52 0.13 NA EW05 121/23/2014 91.0 91.39 0.01 NA Groundwater extraction system shutdown pending carbon change-out EW05 12/30/2014 91.37 91.36 0.01 NA Groundwater extraction system remained shutdown pending carbon change-out EW05 11/8/2015 91.31 NP 0.00 NA EW05 11/8/2015 91.32 NP 0.00 NA EW05 11/3/30/2015 91.92 NP 0.00 NA EW05 11/3/30/2015 91.92 NP 0.00 NA EW05 11/3/30/2015 91.92 91.49 0.51 0.1 EW05 2/3/2015 92.07 91.54 0.63 NA EW05 2/3/2015 92.17 91.54 0.63 NA EW05 2/3/2015 91.92 91.49 0.23 NA EW05 2/21/2015 91.99 91.54 0.60 NA EW05 2/21/2015 91.91 91.56 0.35 NA EW05 2/21/2015 92.30 91.58 0.72 NA EW05 3/30/2015 92.30 91.58 0.72 0.1 Measurements recorded prior to LNAPL removal EW05 3/31/2015 92.30 91.58 0.72 0.1 Measurements recorded prior to LNAPL removal EW05 3/31/2015 92.30 91.58 0.72 0.1 Measurements recorded prior to LNAPL removal EW05 3/31/2015 92.30 91.58 0.72 0.1 Measurements recorded prior to LNAPL removal EW05 3/31/2015 92.30 91.58 0.72 0.1 Measurements recorded prior to LNAPL removal EW05 3/31/2015 92.50 91.71 0.79 NA EW05 6/32/2015 92.50 91.71 0.79 NA EW05 6/32/2015 92.50 91.71 0.79 NA EW05 6/32/2015 92.50 91.70 0.33 NA EW05 7/22/2015 92.69 91.70 0.33 NA EW06 6/32/2015 92.09 91.70 0.33 NA EW05 7/22/2015 92.09 91.70 0.30 NA EW06 6/32/2015 92.09 91.70 0.30 NA EW06 6/32/2015 92.09 91.70 0.30 NA EW06 6/32/2015 92.09 91.70 0.30 NA EW06 8/32/2015 92.09 91.70 0.50 NA E	EW05	11/12/2014	91.65	91.48	0.17	NA	Temporary system shutdown due to alarm condition
EW05 12/8/2014 91.55 91.51 0.04 NA EW05 12/12/2014 91.40 91.39 0.01 NA Groundwater extraction system shutdown pending carbon change-out EW05 12/30/2014 91.37 91.36 0.01 NA Groundwater extraction system remained shutdown pending carbon change-out EW05 1/8/2015 91.31 NP 0.00 NA Groundwater extraction system remained shutdown pending carbon change-out EW05 1/19/2015 91.31 NP 0.00 NA Groundwater extraction system remained shutdown pending carbon change-out EW05 1/19/2015 91.32 NP 0.00 NA Groundwater extraction system remained shutdown pending carbon change-out EW05 1/30/2015 91.32 NP 0.00 NA Groundwater extraction system remained shutdown pending carbon change-out EW05 1/30/2015 92.00 91.49 0.50 NA EW05 1/30/2015 92.01 91.49 0.51 NA EW05 2/13/2015 91.72 91.49 <t< td=""><td>EW05</td><td>11/17/2014</td><td>91.64</td><td>91.51</td><td>0.13</td><td>NA</td><td></td></t<>	EW05	11/17/2014	91.64	91.51	0.13	NA	
EW05 12/8/2014 91.55 91.51 0.04 NA EW05 12/13/2014 91.40 91.39 0.01 NA Groundwater extraction system shutdown pending carbon change-out EW05 12/30/2014 91.37 91.36 0.01 NA Groundwater extraction system remained shutdown pending carbon change-out EW05 1/8/2015 91.31 NP 0.00 NA Groundwater extraction system remained shutdown pending carbon change-out EW05 1/19/2015 91.32 NP 0.00 NA Groundwater extraction system remained shutdown pending carbon change-out EW05 1/30/2015 91.32 NP 0.00 NA Groundwater extraction system remained shutdown pending carbon change-out EW05 1/30/2015 91.95 91.45 0.50 NA Groundwater extraction system remained shutdown pending carbon change-out EW05 2/13/2015 92.14 91.54 0.63 NA Ma EW05 2/13/2015 92.14 91.54 0.60 NA Groundwater extraction system remained shutdown pending carbon change-out	EW05	12/1/2014	91.58	91.46	0.12	NA	
EW05 12/23/2014 91.40 91.39 0.01 NA Groundwater extraction system shutdown pending carbon change-out EW05 1/30/2014 91.37 91.36 0.01 NA Groundwater extraction system remained shutdown pending carbon change-out EW05 1/32/2015 91.31 NP 0.00 NA Groundwater extraction system remained shutdown pending carbon change-out EW05 1/18/2015 91.32 NP 0.00 NA Groundwater extraction system remained shutdown pending carbon change-out EW05 1/30/2015 91.95 91.45 0.50 NA Groundwater extraction system remained shutdown pending carbon change-out EW05 1/30/2015 92.00 91.49 0.51 0.1 Measurements recorded prior to LNAPL removal EW05 2/13/2015 92.14 91.54 0.60 NA Groundwater extraction pump turned off EW05 2/17/2015 NI NM NM NM 0.3 Measurements recorded prior to LNAPL removal EW05 2/27/2015 NM NM NM 0.3 Measuremen	EW05	12/8/2014			0.04		
EW05 12/23/2014 91.40 91.39 0.01 NA Groundwater extraction system shutdown pending carbon change-out EW05 1/30/2014 91.37 91.36 0.01 NA Groundwater extraction system remained shutdown pending carbon change-out EW05 1/32/2015 91.31 NP 0.00 NA Groundwater extraction system remained shutdown pending carbon change-out EW05 1/18/2015 91.32 NP 0.00 NA Groundwater extraction system remained shutdown pending carbon change-out EW05 1/30/2015 91.95 91.45 0.50 NA Groundwater extraction system remained shutdown pending carbon change-out EW05 1/30/2015 92.00 91.49 0.51 0.1 Measurements recorded prior to LNAPL removal EW05 2/13/2015 92.14 91.54 0.60 NA Groundwater extraction pump turned off EW05 2/17/2015 NI NM NM NM 0.3 Measurements recorded prior to LNAPL removal EW05 2/27/2015 NM NM NM 0.3 Measuremen	EW05	12/11/2014				NA	
EW05	EW05	12/23/2014	91.40	91.39	0.01	NA	Groundwater extraction system shutdown pending carbon change-out
EW05 1/19/2015 91.32 NP 0.00 NA Groundwater extraction system restarted after carbon change-out EW05 1/20/2015 92.00 91.49 0.51 0.1 Measurements recorded prior to LNAPL removal EW05 2/3/2015 92.17 91.54 0.63 NA EW05 2/3/2015 92.17 91.54 0.60 NA Groundwater extraction pump turned off EW05 2/3/2015 91.72 91.49 0.23 NA EW05 2/17/2015 91.72 91.49 0.23 NA EW05 2/24/2015 91.91 91.56 0.35 NA EW05 3/26/2015 92.30 91.59 0.72 0.1 Measurements recorded prior to LNAPL removal EW05 3/36/2015 92.42 91.62 0.80 NA EW05 3/36/2015 92.42 91.62 0.80 NA EW05 4/10/2015 92.50 91.71 0.79 NA EW05 5/8/2015 92.30 91.70 0.33 NA EW05 5/8/2015 92.34 91.69 0.82 NA EW05 6/3/2015 92.34 91.69 0.82 NA EW05 6/3/2015 92.34 91.70 0.33 NA EW05 5/8/2015 92.34 91.70 0.33 NA EW05 6/3/2015 92.34 91.70 0.58 1.0 EW05 6/3/2015 92.24 91.70 0.50 0.4 EW05 6/3/2015 92.34 91.70 0.58 NA EW05 8/7/20215 NM NM NM 0.5 EW05 7/10/2015 NM NM NM 0.5 EW05 7/10/2015 NM NM NM 0.5 EW05 8/7/2015 NM NM NM 0.5 EW05 8/7/2015 NM NM NM 0.5 EW05 8/7/2015 92.60 92.04 0.56 NA EW05 8/7/2015 92.60 92.04 0.56 NA EW05 8/7/2015 NM NM NM 0.3 EW05 8/7/2015 NM NM NM NM 0.3 EW05 8/7/2015 NM NM NM NM 0.3	EW05	12/30/2014	91.37	91.36	0.01	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW05 1/30/2015 91.95 91.45 0.50 NA EW05 1/30/2015 92.00 91.49 0.51 0.1 Measurements recorded prior to LNAPL removal EW05 2/3/2015 92.14 91.54 0.63 NA EW05 2/13/2015 91.79 91.49 0.23 NA EW05 2/17/2015 91.79 91.49 0.23 NA EW05 2/20/2015 91.91 91.56 0.35 NA EW05 2/20/2015 91.91 91.56 0.35 NA EW05 2/27/2015 NM NM NM 0.3 Measurements recorded prior to LNAPL removal EW05 3/10/2015 92.30 91.58 0.72 0.1 Measurements recorded prior to LNAPL removal EW05 3/10/2015 92.30 91.58 0.72 0.1 Measurements recorded prior to LNAPL removal EW05 3/10/2015 92.30 91.58 0.72 0.1 Measurements recorded prior to LNAPL removal EW05 3/10/2015 92.30 91.58 0.72 NA EW05 3/10/2015 92.30 91.58 0.72 NA EW05 3/10/2015 NM NM NM NM 0.5 EW05 4/10/2015 92.50 91.71 0.79 NA EW05 4/10/2015 92.50 91.71 0.79 NA EW05 4/10/2015 92.50 91.71 0.79 NA EW05 4/10/2015 92.51 91.69 0.82 NA EW05 4/16/2015 92.34 91.69 0.82 NA EW05 6/8/2015 92.34 91.76 0.58 1.0 EW05 6/3/2015 92.34 91.76 0.58 1.0 EW05 6/16/2015 92.34 91.95 0.39 NA EW05 7/32/2015 92.34 91.95 0.39 NA EW05 7/32/2015 92.34 91.95 0.39 NA EW05 7/21/2015 92.58 91.93 0.65 NA EW05 7/23/2015 92.58 91.93 0.65 NA EW05 7/23/2015 92.58 91.93 0.65 NA EW05 7/23/2015 92.69 92.94 0.56 NA EW05 8/10/2015 92.58 91.93 0.65 NA EW05 8/10/2015 92.59 91.96 0.73 NA EW05 8/10/2015 92.59 91.96 0.73 NA EW05 8/10/2015 92.69 92.94 0.56 NA EW05 7/23/2015 NM NM NM NM 0.5 EW05 8/10/2015 92.45 91.94 0.51 NA EW05 9/10/2015 92.45 91.97 91.67 0.20 NA EW05 9/10/2015 92.45 91.67 0.20 NA EW05 9/10/2015 91.66 91.65 0.01 NA EW05 9/10/2015 91.66 91.65 0.01 NA EW05 9/10/2015 91.66 91.65 0.01 NA	EW05	1/8/2015	91.31	NP	0.00	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW05 1/30/2015 92.00 91.49 0.51 0.1 Measurements recorded prior to LNAPL removal EW05 2/13/2015 92.17 91.54 0.63 NA Groundwater extraction pump turned off EW05 2/13/2015 91.72 91.49 0.23 NA EW05 2/20/2015 91.96 91.56 0.35 NA EW05 2/20/2015 91.91 91.56 0.35 NA EW05 2/27/2015 91.91 91.56 0.35 NA EW05 2/27/2015 91.91 91.56 0.35 NA EW05 2/27/2015 91.91 91.58 0.72 0.1 Measurements recorded prior to LNAPL removal EW05 3/10/2015 92.30 91.58 0.72 0.1 Measurements recorded prior to LNAPL removal EW05 3/26/2015 92.42 91.62 0.80 NA EW05 3/31/2015 92.42 91.62 0.80 NA EW05 3/31/2015 92.50 91.71 0.79 NA EW05 4/10/2015 92.50 91.71 0.79 NA EW05 4/27/2015 NM NM NM NM 1.0 EW05 4/27/2015 92.50 91.71 0.79 NA EW05 4/2015 92.50 91.70 0.33 NA EW05 5/8/2015 92.03 91.70 0.33 NA EW05 5/8/2015 92.03 91.70 0.33 NA EW05 5/8/2015 92.34 91.95 0.59 1.0 EW05 6/3/2015 92.34 91.76 0.58 1.0 EW05 6/3/2015 92.34 91.95 0.39 NA EW05 7/10/2015 92.34 91.95 0.39 NA EW05 7/10/2015 92.34 91.95 0.39 NA EW05 7/21/2015 92.34 91.95 0.39 NA EW05 7/21/2015 92.40 91.86 0.54 0.3 EW05 7/21/2015 92.40 91.86 0.54 0.3 EW05 7/21/2015 92.50 91.91 NM NM NM 0.5 EW05 7/21/2015 92.50 91.91 NM NM NM 0.5 EW05 7/21/2015 92.34 91.95 0.39 NA EW05 7/21/2015 92.40 91.86 0.54 0.3 EW05 7/21/2015 92.40 91.86 0.54 0.3 EW05 7/21/2015 92.50 91.91 0.50 0.4 EW05 7/21/2015 92.50 91.91 0.50 0.4 EW05 7/21/2015 92.50 91.91 0.50 NA EW05 7/21/2015 92.50 91.91 0.50 NA EW05 7/21/2015 92.60 92.04 0.56 NA EW05 8/72015 NM NM NM 0.5 EW05 8/72015 NM NM NM 0.5 EW05 8/72015 92.60 92.04 0.56 NA EW05 8/72015 92.60 92.04 0.56 NA EW05 8/72015 NM NM NM 0.3 EW05 8/72015 91.60 91.65 0.01 NA EW05 91/2015 91.66 91.65 0.01 NA EW05 10/82015 91.66 91.65 0.01 NA EW05 91/2015 91.67 91.67 91.60 0.01 NA	EW05	1/19/2015	91.32	NP	0.00	NA	Groundwater extraction system restarted after carbon change-out
EW05 2/3/2015 92.14 91.54 0.63 NA EW05 2/13/2015 92.14 91.54 0.60 NA Groundwater extraction pump turned off EW05 2/20/2015 91.96 91.54 0.42 NA EW05 2/24/2015 91.91 91.56 0.35 NA EW05 2/24/2015 91.91 91.56 0.35 NA EW05 3/24/2015 91.91 91.58 0.72 0.1 Measurements recorded prior to LNAPL removal EW05 3/10/2015 92.30 91.58 0.72 0.1 Measurements recorded prior to LNAPL removal EW05 3/31/2015 NM NM NM NM NM NA EW05 3/31/2015 NM NM NM NM NM NM NA EW05 4/16/2015 92.51 91.69 0.82 NA NA EW05 5/24/2015 92.34 91.76 0.58 1.0 NA E	EW05	1/22/2015	91.95	91.45	0.50	NA	
EW05 2/13/2015 92.14 91.54 0.60 NA Groundwater extraction pump turned off EW05 2/20/2015 91.72 91.49 0.23 NA EW05 2/20/2015 91.96 91.54 0.42 NA EW05 2/21/2015 91.91 91.56 0.35 NA EW05 2/21/2015 91.91 91.58 0.72 0.1 Measurements recorded prior to LNAPL removal EW05 3/10/2015 92.30 91.58 0.72 0.1 Measurements recorded prior to LNAPL removal EW05 3/31/2015 92.42 91.62 0.80 NA EW05 3/31/2015 92.42 91.62 0.80 NA EW05 4/10/2015 92.50 91.71 0.79 NA EW05 4/10/2015 92.51 91.69 0.82 NA EW05 5/8/2015 92.03 91.70 0.33 NA EW05 5/8/2015 92.03 91.79 0.50 0.4	EW05	1/30/2015	92.00	91.49	0.51	0.1	Measurements recorded prior to LNAPL removal
EW05 2/17/2015 91.72 91.49 0.23 NA EW05 2/20/2015 91.96 91.54 0.42 NA EW05 2/24/2015 91.91 91.56 0.35 NA EW05 2/24/2015 91.81 91.56 0.35 NA EW05 3/10/2015 92.30 91.58 0.72 0.1 Measurements recorded prior to LNAPL removal EW05 3/26/2015 92.42 91.62 0.80 NA EW05 3/26/2015 92.42 91.62 0.80 NA EW05 3/31/2015 NM NM NM NM 0.5 EW05 4/16/2015 92.51 91.69 0.82 NA EW05 4/26/2015 92.03 91.70 0.33 NA EW05 5/8/2015 92.03 91.70 0.33 NA EW05 5/3/2015 92.24 91.92 0.58 1.0 EW05 6/3/2015 92.40 91.86	EW05	2/3/2015	92.17	91.54	0.63	NA	
EW05 2/20/2015 91.96 91.54 0.42 NA EW05 2/24/2015 91.91 91.56 0.35 NA EW05 2/27/2015 NM NM NM NM 0.3 Measurements recorded prior to LNAPL removal EW05 3/10/2015 92.30 91.58 0.72 0.1 Measurements recorded prior to LNAPL removal EW05 3/26/2015 92.42 91.62 0.80 NA EW05 3/31/2015 NM NM NM NM 0.5 EW05 4/10/2015 92.50 91.71 0.79 NA EW05 4/16/2015 92.51 91.69 0.82 NA EW05 5/8/2015 92.03 91.70 0.33 NA EW05 5/21/2015 92.03 91.70 0.58 1.0 EW05 5/21/2015 92.24 91.79 0.50 0.4 EW05 6/3/2015 92.29 91.79 0.50 0.4 <td< td=""><td>EW05</td><td>2/13/2015</td><td>92.14</td><td>91.54</td><td>0.60</td><td>NA</td><td>Groundwater extraction pump turned off</td></td<>	EW05	2/13/2015	92.14	91.54	0.60	NA	Groundwater extraction pump turned off
EW05 2/24/2015 91.91 91.56 0.35 NA EW05 2/27/2015 NM NM NM NM 0.3 Measurements recorded prior to LNAPL removal EW05 3/26/2015 92.42 91.62 0.80 NA EW05 3/26/2015 92.42 91.62 0.80 NA EW05 3/21/2015 NM NM NM NM 0.5 EW05 4/10/2015 92.50 91.71 0.79 NA EW05 4/27/2015 NM NM NM NM 1.0 EW05 4/27/2015 92.51 91.69 0.82 NA EW05 5/8/2015 92.03 91.70 0.33 NA EW05 5/8/2015 92.03 91.70 0.33 NA EW05 6/3/2015 92.24 91.86 0.54 0.3 EW05 7/8/2015 92.34 91.95 0.39 NA EW05 7/21/2015 91.8	EW05	2/17/2015	91.72	91.49	0.23	NA	
EW05 2/27/2015 NM NM NM NM 0.3 Measurements recorded prior to LNAPL removal Measurements of 2014 Measurements recorded prior to LNAPL removal S1/2015 EW05 3/10/2015 92.30 91.62 0.80 NA EW05 3/26/2015 92.42 91.62 0.80 NA EW05 3/31/2015 NM NM NM 0.5 EW05 4/10/2015 92.50 91.71 0.79 NA EW05 4/16/2015 92.51 91.69 0.82 NA EW05 4/27/2015 NM NM NM 1.0 EW05 5/21/2015 92.03 91.70 0.33 NA EW05 5/21/2015 92.34 91.76 0.58 1.0 EW05 6/3/2015 92.29 91.79 0.50 0.4 EW05 6/3/2015 92.20 91.86 0.54 0.3 EW05 7/8/2015 92.40 91.86 0.54 0.3 EW05 7/23/2015 <td>EW05</td> <td>2/20/2015</td> <td>91.96</td> <td>91.54</td> <td>0.42</td> <td>NA</td> <td></td>	EW05	2/20/2015	91.96	91.54	0.42	NA	
EW05 3/10/2015 92.30 91.58 0.72 0.1 Measurements recorded prior to LNAPL removal EW05 3/26/2015 92.42 91.62 0.80 NA EW05 3/31/2015 NM NM NM NM 0.5 EW05 4/10/2015 92.50 91.71 0.79 NA EW05 4/10/2015 92.51 91.69 0.82 NA EW05 4/27/2015 NM NM NM NM 1.0 EW05 5/8/2015 92.03 91.70 0.33 NA EW05 5/8/2015 92.03 91.70 0.33 NA EW05 5/21/2015 92.24 91.79 0.50 0.4 EW05 6/3/2015 92.29 91.79 0.50 0.4 EW05 6/3/2015 92.29 91.79 0.50 0.4 EW05 6/3/2015 92.34 91.96 0.54 0.3 EW05 7/8/2015 92.34 91.96 0.54 EW05 7/10/2015 NM NM NM NM 0.5 EW05 7/21/2015 92.34 91.93 0.65 NA EW05 7/21/2015 92.58 91.93 0.65 NA EW05 7/23/2015 92.69 91.96 0.73 NA EW05 8/5/2015 92.60 92.04 0.56 NA EW05 8/5/2015 92.60 92.04 0.56 NA EW05 8/5/2015 92.60 92.04 0.56 NA EW05 8/21/2015 NM NM NM 0.3 EW05 9/21/2015 NM NM NM 0.3 EW05 9/21/2015 P3.60 91.66 0.01 NA EW05 9/21/2015 91.67 91.66 0.01 NA EW05 110/22/2015 91.66 91.65 0.01 NA EW05 110/22/2015 91.61 91.51 91.50 0.01 NA	EW05	2/24/2015	91.91	91.56	0.35	NA	
EW05 3/26/2015 92.42 91.62 0.80 NA EW05 3/31/2015 NM NM NM 0.5 EW05 4/10/2015 92.50 91.71 0.79 NA EW05 4/10/2015 92.51 91.69 0.82 NA EW05 4/27/2015 NM NM NM 1.0 EW05 4/27/2015 92.03 91.70 0.33 NA EW05 5/21/2015 92.34 91.76 0.58 1.0 EW05 6/36/2015 92.34 91.76 0.58 1.0 EW05 6/36/2015 92.34 91.76 0.50 0.4 EW05 6/16/2015 92.34 91.79 0.50 0.4 EW05 6/16/2015 92.34 91.95 0.39 NA EW05 7/2015 92.34 91.95 0.39 NA EW05 7/20/2015 92.34 91.95 0.39 NA EW05 7/20/2015 92.34 91.95 0.39 NA EW05 7/20/2015 92.69 91.96 0.54 0.3 EW05 7/23/2015 NM NM NM 0.5 EW05 7/23/2015 NM NM NM 0.5 EW05 7/23/2015 92.69 91.96 0.73 NA EW05 7/23/2015 92.69 91.96 0.73 NA EW05 8/3/2015 92.69 92.04 0.56 NA EW05 8/3/2015 92.60 92.04 0.56 NA EW05 8/3/2015 92.45 91.94 0.51 NA EW05 9/4/2015 92.02 91.82 0.20 NA EW05 9/4/2015 NM NM NM NM 0.3 EW05 9/4/2015 91.67 91.66 0.01 NA EW05 9/21/2015 91.67 91.66 0.01 NA EW05 11/2/2015 91.67 91.66 0.01 NA EW05 11/2/2015 91.67 91.66 0.01 NA EW05 11/2/2015 91.67 91.66 0.01 NA	EW05	2/27/2015	NM	NM	NM	0.3	Measurements recorded prior to LNAPL removal
EW05 3/31/2015 NM NM NM NM 0.5 EW05 4/10/2015 92.50 91.71 0.79 NA EW05 4/16/2015 92.51 91.69 0.82 NA EW05 4/27/2015 NM NM NM 1.0 EW05 5/8/2015 92.33 91.70 0.33 NA EW05 5/8/2015 92.34 91.76 0.58 1.0 EW05 6/3/2015 92.29 91.79 0.50 0.4 EW05 6/3/2015 92.29 91.79 0.50 0.4 EW05 6/3/2015 92.40 91.86 0.54 0.3 EW05 7/8/2015 92.34 91.95 0.39 NA EW05 7/8/2015 92.34 91.95 0.39 NA EW05 7/10/2015 NM NM NM 0.5 EW05 7/21/2015 92.58 91.93 0.65 NA EW05 7/23/2015 92.69 91.96 0.73 NA EW05 7/23/2015 92.69 91.96 0.73 NA EW05 8/5/2015 92.60 92.04 0.56 NA EW05 8/5/2015 92.60 92.04 0.56 NA EW05 8/5/2015 92.65 91.94 0.51 NA EW05 8/19/2015 NM NM NM 0.3 EW05 8/19/2015 NM NM NM 0.3 EW05 8/19/2015 92.45 91.94 0.51 NA EW05 9/41/2015 92.45 91.82 0.20 NA EW05 9/21/2015 92.69 91.66 0.01 NA EW05 9/21/2015 91.67 91.66 0.01 NA EW05 9/21/2015 91.67 91.66 0.01 NA EW05 11/2/2015 91.67 91.66 0.01 NA EW05 11/2/2015 91.67 91.66 0.01 NA EW05 11/2/2015 91.67 91.66 0.01 NA	EW05	3/10/2015	92.30	91.58	0.72	0.1	Measurements recorded prior to LNAPL removal
EW05 4/10/2015 92.50 91.71 0.79 NA EW05 4/16/2015 92.51 91.69 0.82 NA EW05 4/27/2015 NM NM NM NM 1.0 EW05 5/8/2015 92.03 91.70 0.33 NA EW05 5/21/2015 92.34 91.76 0.58 1.0 EW05 6/3/2015 92.29 91.79 0.50 0.4 EW05 6/3/2015 92.40 91.86 0.54 0.3 EW05 6/3/2015 92.34 91.95 0.39 NA EW05 7/8/2015 92.34 91.95 0.39 NA EW05 7/8/2015 92.34 91.95 0.39 NA EW05 7/8/2015 92.34 91.95 0.39 NA EW05 7/10/2015 NM NM NM 0.5 EW05 7/12/2015 92.58 91.93 0.65 NA EW05 7/21/2015 92.58 91.93 0.65 NA EW05 7/23/2015 NM NM NM 0.5 EW05 7/23/2015 NM NM NM 0.5 EW05 7/23/2015 92.69 91.96 0.73 NA EW05 8/7/2015 92.60 92.04 0.56 NA EW05 8/7/2015 92.60 92.04 0.56 NA EW05 8/7/2015 92.60 92.04 0.56 NA EW05 8/7/2015 NM NM NM 0.3 EW05 8/19/2015 92.45 91.94 0.51 NA EW05 9/4/2015 92.02 91.82 0.20 NA EW05 9/4/2015 92.02 91.82 0.20 NA EW05 9/4/2015 91.67 91.66 0.01 NA EW05 10/8/2015 91.67 91.66 0.01 NA EW05 10/8/2015 91.67 91.66 0.01 NA EW05 11/2/2015 91.51 91.50 0.01 NA	EW05	3/26/2015	92.42	91.62	0.80	NA	
EW05 4/16/2015 92.51 91.69 0.82 NA EW05 4/27/2015 NM NM NM NM 1.0 EW05 5/8/2015 92.03 91.70 0.33 NA EW05 5/21/2015 92.34 91.76 0.58 1.0 EW05 6/3/2015 92.29 91.79 0.50 0.4 EW05 6/16/2015 92.40 91.86 0.54 0.3 EW05 7/8/2015 92.34 91.95 0.39 NA EW05 7/8/2015 92.58 91.93 0.65 NA EW05 7/21/2015 92.58 91.93 0.65 NA EW05 7/23/2015 NM NM NM 0.5 EW05 7/29/2015 92.69 91.96 0.73 NA EW05 8/5/2015 92.60 92.04 0.56 NA EW05 8/5/2015 92.60 92.04 0.56 NA EW05 8/5/2015 92.45 91.94 0.51 NA EW05 8/19/2015 NM NM NM 0.3 EW05 8/19/2015 NM NM NM NM 0.3 EW05 8/19/2015 NM NM NM NM 0.3 EW05 8/21/2015 NM NM NM NM 0.3 EW05 9/21/2015 92.02 91.82 0.20 NA EW05 9/21/2015 92.02 91.82 0.20 NA EW05 9/21/2015 91.67 91.66 0.01 NA EW05 10/82/2015 91.87 91.67 0.20 NA EW05 10/82/2015 91.66 91.65 0.01 NA EW05 10/82/2015 91.66 91.65 0.01 NA	EW05	3/31/2015	NM	NM	NM	0.5	
EW05 4/27/2015 NM NM NM 1.0 EW05 5/8/2015 92.03 91.70 0.33 NA EW05 5/21/2015 92.34 91.76 0.58 1.0 EW05 6/3/2015 92.29 91.79 0.50 0.4 EW05 6/16/2015 92.40 91.86 0.54 0.3 EW05 7/8/2015 92.34 91.95 0.39 NA EW05 7/10/2015 NM NM NM 0.5 EW05 7/10/2015 NM NM NM 0.5 EW05 7/21/2015 92.58 91.93 0.65 NA EW05 7/21/2015 92.69 91.96 0.73 NA EW05 7/29/2015 92.69 91.96 0.73 NA EW05 8/5/2015 92.60 92.04 0.56 NA EW05 8/7/2015 NM NM NM 0.3 EW06 8/19/2015 92.45 91.94 0.51 NA EW06 8/19/2015 92.45 91.94 0.51 NA EW06 8/19/2015 NM NM NM NM 0.3 EW06 8/19/2015 92.45 91.94 0.51 NA EW05 8/19/2015 NM NM NM NM 0.3 EW06 8/19/2015 92.45 91.94 0.51 NA EW05 8/19/2015 NM NM NM NM 0.3 EW06 8/19/2015 92.02 91.82 0.20 NA EW05 9/4/2015 92.02 91.82 0.20 NA EW05 9/4/2015 91.67 91.66 0.01 NA EW05 10/8/2015 91.67 91.66 0.01 NA	EW05	4/10/2015	92.50	91.71	0.79	NA	
EW05 4/27/2015 NM NM NM 1.0 EW05 5/8/2015 92.03 91.70 0.33 NA EW05 5/21/2015 92.34 91.76 0.58 1.0 EW05 6/3/2015 92.29 91.79 0.50 0.4 EW05 6/16/2015 92.40 91.86 0.54 0.3 EW05 7/8/2015 92.34 91.95 0.39 NA EW05 7/10/2015 NM NM NM 0.5 EW05 7/21/2015 92.58 91.93 0.65 NA EW05 7/21/2015 92.69 91.96 0.73 NA EW05 7/29/2015 92.69 91.96 0.73 NA EW05 8/7/2015 NM NM NM 0.3 EW05 8/7/2015 NM NM NM 0.3 EW05 8/7/2015 NM NM NM 0.3 EW05 8/7/2015 NM NM NM NM 0.3 EW05 8/7/2015 92.69 91.94 0.56 NA EW05 8/7/2015 NM NM NM 0.3 EW05 8/7/2015 NM NM NM NM 0.3 EW05 8/7/2015 NM NM NM NM 0.3 EW05 8/7/2015 NM NM NM NM 0.3 EW05 8/19/2015 92.45 91.94 0.51 NA EW05 8/19/2015 92.45 91.94 0.51 NA EW05 8/19/2015 NM NM NM NM 0.3 EW05 8/19/2015 92.02 91.82 0.20 NA EW05 9/4/2015 92.02 91.82 0.20 NA EW05 9/4/2015 91.67 91.66 0.01 NA EW05 10/8/2015 91.67 91.66 0.01 NA	EW05	4/16/2015	92.51	91.69	0.82	NA	
EW05 5/8/2015 92.03 91.70 0.33 NA EW05 5/21/2015 92.34 91.76 0.58 1.0 EW05 6/3/2015 92.29 91.79 0.50 0.4 EW05 6/16/2015 92.40 91.86 0.54 0.3 EW05 7/8/2015 92.34 91.95 0.39 NA EW05 7/10/2015 NM NM NM 0.5 EW05 7/21/2015 92.58 91.93 0.65 NA EW05 7/21/2015 92.58 91.93 0.65 NA EW05 7/21/2015 92.60 91.96 0.73 NA EW05 7/28/2015 92.60 92.04 0.56 NA EW05 8/5/2015 92.60 92.04 0.56 NA EW05 8/5/2015 92.60 92.04 0.56 NA EW05 8/19/2015 NM NM NM 0.3 EW05 8/19/2015 NM NM NM 0.3 EW05 8/19/2015 92.45 91.94 0.51 NA EW05 8/19/2015 92.45 91.94 0.51 NA EW05 9/1/2015 92.02 91.82 0.20 NA EW05 9/1/2015 92.02 91.82 0.20 NA EW05 9/1/2015 91.67 91.66 0.01 NA EW05 10/8/2015 91.67 91.66 0.01 NA EW05 10/8/2015 91.67 91.66 0.01 NA EW05 10/8/2015 91.87 91.67 0.20 NA EW05 10/8/2015 91.86 91.65 0.01 NA EW05 11/2/2015 91.66 91.65 0.01 NA	EW05	4/27/2015		NM	NM	1.0	
EW05 6/3/2015 92.29 91.79 0.50 0.4 EW05 6/16/2015 92.40 91.86 0.54 0.3 EW05 7/8/2015 92.34 91.95 0.39 NA EW05 7/10/2015 NM NM NM 0.5 EW05 7/21/2015 92.58 91.93 0.65 NA EW05 7/23/2015 NM NM NM 0.5 EW05 7/29/2015 92.69 91.96 0.73 NA EW05 8/5/2015 92.60 92.04 0.56 NA EW05 8/5/2015 NM NM NM 0.3 EW05 8/19/2015 92.45 91.94 0.51 NA EW05 8/19/2015 92.45 91.94 0.51 NA EW05 8/19/2015 NM NM NM 0.3 EW05 8/21/2015 NM NM NM 0.3 EW05 8/21/2015 NM NM NM 0.3 EW05 9/4/2015 92.02 91.82 0.20 NA EW05 9/4/2015 92.02 91.86 0.01 NA EW05 9/21/2015 NM NM NM NM 0.3 EW05 9/21/2015 91.67 91.66 0.01 NA EW05 10/22/2015 91.67 91.66 0.01 NA EW05 10/22/2015 91.67 91.66 0.01 NA EW05 10/22/2015 91.67 91.66 0.01 NA EW05 11/2/2015 91.67 91.66 0.01 NA	EW05	5/8/2015	92.03	91.70	0.33	NA	
EW05 6/16/2015 92.40 91.86 0.54 0.3 EW05 7/8/2015 92.34 91.95 0.39 NA EW05 7/10/2015 NM NM NM 0.5 EW05 7/21/2015 92.58 91.93 0.65 NA EW05 7/23/2015 NM NM NM 0.5 EW05 7/28/2015 92.69 91.96 0.73 NA EW05 8/5/2015 92.60 92.04 0.56 NA EW05 8/7/2015 NM NM NM 0.3 EW05 8/7/2015 NM NM NM NM 0.3 EW05 8/7/2015 92.45 91.94 0.51 NA EW05 8/19/2015 92.45 91.94 0.51 NA EW06 8/21/2015 NM NM NM NM 0.3 EW06 8/21/2015 NM NM NM NM 0.3 EW05 8/21/2015 NM NM NM NM 0.3 EW05 8/21/2015 92.45 91.94 0.51 NA EW05 8/21/2015 92.02 91.82 0.20 NA EW05 9/11/2015 NM NM NM NM 0.3 EW05 9/11/2015 91.67 91.66 0.01 NA EW05 10/8/2015 91.67 91.66 0.01 NA EW05 10/8/2015 91.67 91.66 0.01 NA EW05 11/2/2015 91.66 91.65 0.01 NA EW05 11/2/2015 91.66 91.65 0.01 NA	EW05	5/21/2015	92.34		0.58	1.0	
EW05 6/16/2015 92.40 91.86 0.54 0.3 EW05 7/8/2015 92.34 91.95 0.39 NA EW05 7/10/2015 NM NM NM 0.5 EW05 7/21/2015 92.58 91.93 0.65 NA EW05 7/23/2015 NM NM NM 0.5 EW05 7/23/2015 NM NM NM 0.5 EW05 7/29/2015 92.69 91.96 0.73 NA EW05 8/5/2015 92.60 92.04 0.56 NA EW05 8/7/2015 NM NM NM 0.3 EW05 8/7/2015 NM NM NM 0.3 EW06 8/7/2015 NM NM NM 0.3 EW06 8/19/2015 92.45 91.94 0.51 NA EW05 8/21/2015 NM NM NM 0.3 EW06 8/21/2015 NM NM NM NM 0.3 EW06 8/21/2015 NM NM NM NM 0.3 EW05 8/21/2015 NM NM NM NM 0.3 EW05 8/21/2015 NM NM NM NM 0.3 EW05 8/21/2015 92.02 91.82 0.20 NA EW05 9/41/2015 91.66 0.01 NA EW05 9/21/2015 91.67 91.66 0.01 NA EW05 10/8/2015 91.67 91.66 0.01 NA EW05 10/8/2015 91.67 91.66 0.01 NA EW05 10/8/2015 91.67 91.66 0.01 NA EW05 11/2/2015 91.66 91.65 0.01 NA	EW05	6/3/2015	92.29	91.79	0.50	0.4	
EW05 7/10/2015 NM NM NM NM 0.5 EW05 7/21/2015 92.58 91.93 0.65 NA EW05 7/29/2015 NM NM NM 0.5 EW05 7/29/2015 92.69 91.96 0.73 NA EW05 8/5/2015 92.60 92.04 0.56 NA EW05 8/7/2015 NM NM NM 0.3 EW05 8/919/2015 92.45 91.94 0.51 NA EW05 8/21/2015 NM NM NM 0.3 EW05 9/4/2015 92.02 91.82 0.20 NA EW05 9/11/2015 NM NM NM <0.1	EW05					0.3	
EW05 7/10/2015 NM NM NM NM 0.5 EW05 7/21/2015 92.58 91.93 0.65 NA EW05 7/23/2015 NM NM NM 0.5 EW05 7/29/2015 92.69 91.96 0.73 NA EW05 8/5/2015 92.60 92.04 0.56 NA EW05 8/7/2015 NM NM NM 0.3 EW05 8/19/2015 92.45 91.94 0.51 NA EW05 8/21/2015 NM NM NM 0.3 EW05 9/4/2015 92.02 91.82 0.20 NA EW05 9/11/2015 NM NM NM NM <0.1	EW05	7/8/2015	92.34	91.95	0.39	NA	
EW05 7/23/2015 NM NM NM NM 0.5 EW05 7/29/2015 92.69 91.96 0.73 NA EW05 8/5/2015 92.60 92.04 0.56 NA EW05 8/71/2015 NM NM NM 0.3 EW05 8/19/2015 92.45 91.94 0.51 NA EW05 8/21/2015 NM NM NM 0.3 EW05 9/4/2015 92.02 91.82 0.20 NA EW05 9/11/2015 NM NM NM <0.1	EW05	7/10/2015	NM		NM	0.5	
EW05 7/23/2015 NM NM NM NM 0.5 EW05 7/29/2015 92.69 91.96 0.73 NA EW05 8/5/2015 92.60 92.04 0.56 NA EW05 8/71/2015 NM NM NM 0.3 EW05 8/19/2015 92.45 91.94 0.51 NA EW05 8/21/2015 NM NM NM 0.3 EW05 9/4/2015 92.02 91.82 0.20 NA EW05 9/11/2015 NM NM NM <0.1	EW05				0.65		
EW05 7/29/2015 92.69 91.96 0.73 NA EW05 8/5/2015 92.60 92.04 0.56 NA EW05 8/71/2015 NM NM NM 0.3 EW05 8/19/2015 92.45 91.94 0.51 NA EW05 8/21/2015 NM NM NM 0.3 EW05 9/4/2015 92.02 91.82 0.20 NA EW05 9/11/2015 NM NM NM <0.1	EW05	7/23/2015	NM				
EW05 8/5/2015 92.60 92.04 0.56 NA EW05 8/7/2015 NM NM NM 0.3 EW05 8/19/2015 92.45 91.94 0.51 NA EW05 8/21/2015 NM NM NM 0.3 EW05 9/4/2015 92.02 91.82 0.20 NA EW05 9/11/2015 NM NM NM <0.1	EW05				0.73	NA	
EW05 8/7/2015 NM NM NM NM 0.3 EW05 8/19/2015 92.45 91.94 0.51 NA EW05 8/21/2015 NM NM NM 0.3 EW05 9/4/2015 92.02 91.82 0.20 NA EW05 9/11/2015 NM NM NM <0.1							
EW05 8/19/2015 92.45 91.94 0.51 NA EW05 8/21/2015 NM NM NM 0.3 EW05 9/4/2015 92.02 91.82 0.20 NA EW05 9/11/2015 NM NM NM <0.1	EW05						
EW05 8/21/2015 NM NM NM 0.3 EW05 9/4/2015 92.02 91.82 0.20 NA EW05 9/11/2015 NM NM NM <0.1							
EW05 9/4/2015 92.02 91.82 0.20 NA EW05 9/11/2015 NM NM NM <0.1	EW05		NM			0.3	
EW05 9/11/2015 NM NM NM < <0.1 EW05 9/21/2015 91.67 91.66 0.01 NA EW05 10/8/2015 91.87 91.67 0.20 NA EW05 10/22/2015 91.66 91.65 0.01 NA EW05 11/2/2015 91.51 91.50 0.01 NA							
EW05 9/21/2015 91.67 91.66 0.01 NA EW05 10/8/2015 91.87 91.67 0.20 NA EW05 10/22/2015 91.66 91.65 0.01 NA EW05 11/2/2015 91.51 91.50 0.01 NA							
EW05 10/8/2015 91.87 91.67 0.20 NA EW05 10/22/2015 91.66 91.65 0.01 NA EW05 11/2/2015 91.51 91.50 0.01 NA							
EW05 10/22/2015 91.66 91.65 0.01 NA EW05 11/2/2015 91.51 91.50 0.01 NA							
EW05 11/2/2015 91.51 91.50 0.01 NA							

Table 7

Well ID	Date	Depth to Water (feet) ¹	Depth to LNAPL (feet) ¹	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW06	11/5/2014	111.22	98.06	13.16	12.0	
EW06	11/12/2014	107.80	98.30	9.50	NA	Temporary system shutdown due to alarm condition
EW06	11/12/2014	1107.80	98.52	9.50 11.82	NA NA	remporary system shutdown due to alarm condition
EW06	11/24/2014	111.05	98.45	12.60	10.0	
EW06	11/25/2014	105.63	98.55	7.08	NA	
EW06	12/1/2014	108.60	98.53	10.07	NA	
EW06	12/4/2014	109.35	98.48	10.87	NA	
EW06	12/8/2014	101.90	97.89	4.01	NA	
EW06	12/11/2014	111.91	98.01	13.90	NA	Measurements recorded prior to LNAPL removal
EW06	12/11/2014	100.35	98.40	1.95	12.0	Measurements recorded immediately after LNAPL removal
EW06	12/15/2014	108.40	98.01	10.39	NA	
EW06	12/23/2014	109.35	98.01	11.34	NA	Measurements recorded prior to LNAPL removal
						Measurements recorded immediately after LNAPL removal, groundwater
EW06	12/23/2014	99.50	98.35	1.15	13.0	extraction system shutdown pending carbon change-out
EW06	12/30/2014	98.59	97.83	0.76	NA	$\label{thm:condition} Groundwater\ extraction\ system\ remained\ shutdown\ pending\ carbon\ change-out$
EW06	1/8/2015	99.00	97.92	1.08	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW06	1/19/2015	99.54	97.80	1.74	NA	Groundwater extraction system restarted after carbon change-out
EW06	1/22/2015	111.10	98.18	12.92	NA	Ordanawater extraolion dystem restarted after earborrentinge out
EW06	1/23/2015	98.90	98.50	0.40	12.0	Measurements recorded immediately after LNAPL removal
EW06	1/30/2015	109.35	98.22	11.13	NA	ineasurements recorded infinediately after Ervar E removal
EW06	2/3/2015	112.61	98.22	14.39	12.0	Measurements recorded prior to LNAPL removal
EW06	2/3/2015	112.44	98.22	14.22	14.0	Groundwater extraction pump turned off
						Groundwater extraction pump turned on
EW06	2/17/2015	101.95	98.12	3.83	NA	
EW06	2/20/2015	105.20	98.18	7.02	NA 0.0	Managements recorded arise to LNADI reserval
EW06	2/24/2015	105.37	98.02	7.35	8.0	Measurements recorded prior to LNAPL removal
EW06	3/10/2015	108.36	98.22	10.14	8.0	Measurements recorded prior to LNAPL removal
EW06	3/24/2015	NM	NM	NM 7.00	8.0	Not measured due to equipment breakdown
EW06	3/26/2015	105.87	98.21	7.66	NA 10.0	
EW06	4/10/2015	105.55	98.39	7.16	10.0	
EW06	4/16/2015	106.02	98.36	7.66	10.0	
EW06	4/30/2015	106.33	98.47	7.86	8.0	Groundwater extraction rate increased to 6 gpm
EW06	5/8/2015	100.72	98.32	2.40	4.0	
EW06	5/21/2015	106.84	98.27	8.57	10.0	
EW06	6/3/2015	106.55	98.41	8.14	NA	
EW06	6/4/2015	NM	NM	NM	10.0	
EW06	6/16/2015	105.85	98.49	7.36	7.0	
EW06	7/8/2015	107.10	98.42	8.68	20.0	
EW06	7/10/2015	107.10	98.60	8.50	17.0	
EW06	7/21/2015	107.90	98.54	9.36	17.0	
EW06	7/29/2015	105.87	98.59	7.28	NA	Groundwater extraction rate decreased to 3 gpm
EW06	8/5/2015	105.98	98.65	7.33	14.0	
EW06	8/7/2015	NM	NM	NM	14.0	
EW06	8/19/2015	103.95	98.51	5.44	10.0	
EW06	9/4/2015	105.31	98.31	7.00	10.0	
EW06	9/21/2015	104.49	98.28	6.21	10.0	
EW06	10/8/2015	100.38	98.25	2.13	5.0	
EW06	10/22/2015	105.54	98.23	7.31	8.0	
EW06	11/2/2015	105.15	98.05	7.10	NA	
EW06	11/5/2015	NM	NM	NM	8.0	
EW06	11/23/2015	NM	NM	NM	NA	Groundwater extraciton pump turned off for pilot study
				NAPL Recovere		

Table 7

Well ID	Date	Depth to Water (feet) ¹	Depth to LNAPL (feet) ¹	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW10	11/4/2014	108.20	103.92	4.28	NA	
EW10	11/5/2014	108.77	104.70	4.07	4.0	
EW10	11/18/2014	107.60	104.35	3.25	NA	
EW10	11/24/2014	107.45	103.94	3.51	0.0	LNAPL pump inoperable, unable to recover LNAPL
EW10	11/25/2014	107.50	103.91	3.59	NA	
EW10	12/1/2014	107.30	104.14	3.16	NA	
EW10	12/4/2014	107.33	104.11	3.22	NA	Measurements recorded prior to LNAPL removal
EW10	12/4/2014	105.35	104.05	1.30	2.0	Measurements recorded immediately after LNAPL removal
EW10	12/8/2014	104.29	103.17	1.12	NA	•
EW10	12/11/2014	106.95	104.05	2.90	NA	Measurements recorded prior to LNAPL removal
EW10	12/11/2014	105.46	104.12	1.34	2.0	Measurements recorded immediately after LNAPL removal
EW10	12/15/2014	106.68	104.00	2.68	NA	,,
EW10	12/23/2014	107.25	103.91	3.34	NA	Measurements recorded prior to LNAPL removal
						Measurements recorded immediately after LNAPL removal, groundwater
EW10	12/23/2014	104.75	104.06	0.69	4.0	extraction system shutdown pending carbon change-out
EW10	12/30/2014	104.59	103.00	1.59	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW10	1/8/2015	104.55	103.10	1.45	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW10	1/19/2015	104.70	103.00	1.70	NA	Groundwater extraction system restarted after carbon change-out
EW10	1/22/2015	106.38	104.31	2.07	NA	
EW10	1/23/2015	104.40	104.38	0.02	2.0	Measurements recorded immediately after LNAPL removal
EW10	1/30/2015	105.76	104.28	1.48	NA	model of the recorded minimately differ Envir 2 former an
EW10	2/3/2015	106.00	104.27	1.73	2.0	Measurements recorded prior to LNAPL removal
EW10	2/13/2015	106.82	104.24	2.58	3.0	Groundwater extraction pump turned off
EW10	2/17/2015	105.80	103.65	2.15	NA	Ordinawater extraction pump tarried on
EW10	2/20/2015	106.40	103.81	2.59	NA NA	
EW10	2/24/2015	106.85	103.79	3.06	2.0	Measurements recorded prior to LNAPL removal
EW10	3/10/2015	107.80	103.81	3.99	2.0	Measurements recorded prior to LNAPL removal
EW10	3/24/2015	108.21	103.84	4.37	2.0	Measurements recorded prior to LNAPL removal
EW10	4/10/2015	108.96	103.86	5.10	3.0	Measurements recorded prior to ENAT E Territoval
EW10	4/16/2015	108.18	103.90	4.28	2.0	
EW10	4/30/2015	107.81	103.84	3.97	2.0	
EW10	5/8/2015	106.84	103.46	3.38	2.5	
EW10	5/21/2015	107.46	103.62	3.84	2.5	
EW10	6/3/2015	107.40	103.60	3.91	NA	
EW10	6/4/2015	NM	NM	NM	2.5	
EW10	6/16/2015	108.20	103.85	4.35	2.0	
EW10	7/8/2015	108.53	103.96	4.57	3.0	
EW10	7/10/2015	106.55		3.88	NA	
EW10	7/10/2015	107.65	103.97 103.96	4.52	3.0	
EW10		108.46		4.10	NA	
	7/29/2015		104.00			
EW10 EW10	8/5/2015 8/19/2015	108.85 108.57	104.00 103.74	4.85 4.83	2.5 3.0	
EW10	9/4/2015	108.57				
			103.60	5.31	3.0	
EW10	9/21/2015	108.35	103.62	4.73	3.0	
EW10	10/8/2015	107.72	103.33	4.39	2.5	
EW10	10/22/2015	109.10	103.56	5.54	3.0	
EW10	11/2/2015	109.50	103.27	6.23	NA 2.0	
EW10	11/5/2015	NM	NM Tatal I	NM NADL Bassiers	3.0	
			i otai L	NAPL Recovere	d 67.5	

Table 7

Well ID	Date	Depth to Water (feet) 1	Depth to LNAPL (feet) 1	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
		` ,	` ,	• •		
EW12	11/4/2014	105.26	105.04	0.22	NA	
EW12	11/6/2014	NM	NM	NM	<0.1	
EW12	11/7/2014	108.26	108.15	0.11	NA	
EW12	11/11/2014	108.39	108.22	0.17	NA	
EW12	11/12/2014	101.16	101.14	0.02	NA	Temporary system shutdown due to alarm condition
EW12	11/17/2014	108.00	107.98	0.02	NA	
EW12	12/8/2014	100.99	NP	0.00	NA	
EW12	12/11/2014	108.98	108.97	0.01	NA	
EW12	12/23/2014	109.75	NP	0.00	NA	Groundwater extraction system shutdown pending carbon change-out
EW12	12/30/2014	101.10	100.88	0.22	NA	$\label{thm:condition} Groundwater\ extraction\ system\ remained\ shutdown\ pending\ carbon\ change-out$
EW12	1/8/2015	101.20	100.84	0.36	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW12	1/19/2015	101.35	100.85	0.50	NA	Groundwater extraction system restarted after carbon change-out
EW12	1/22/2015	108.16	108.15	0.01	NA	
EW12	1/30/2015	108.96	108.96	0.00	NA	
EW12	2/3/2015	109.13	109.13	0.00	NA	
EW12	2/13/2015	109.98	NP	0.00	NA	Groundwater extraction pump turned off
EW12	2/17/2015	101.56	101.08	0.48	NA	
EW12	2/20/2015	101.90	101.32	0.58	NA	
EW12	2/24/2015	102.01	101.31	0.70	NA	
EW12	2/27/2015	NM	NM	NM	0.1	Measurements recorded prior to LNAPL removal
EW12	3/10/2015	102.35	101.35	1.00	0.1	Measurements recorded prior to LNAPL removal
EW12	3/24/2015	102.45	101.33	1.12	NA	
EW12	3/31/2015	NM	NM	NM	1.0	
EW12	4/10/2015	102.22	101.36	0.86	NA	
EW12	4/16/2015	102.32	101.36	0.96	NA	
EW12	4/27/2015	NM	NM	NM	1.0	
EW12	5/8/2015	101.99	101.19	0.80	NA	
EW12	5/21/2015	102.39	101.40	0.99	1.0	
EW12	6/3/2015	102.34	101.45	0.89	0.4	
EW12	6/16/2015	102.27	101.50	0.77	0.3	
EW12	7/8/2015	102.26	101.54	0.72	NA	
EW12	7/10/2015	NM	NM	NM	0.5	
EW12	7/21/2015	102.10	101.61	0.49	NA	
EW12	7/23/2015	NM	NM	NM	0.5	
EW12	7/29/2015	102.11	101.65	0.46	NA	
EW12	8/5/2015	102.39	101.69	0.70	NA	
EW12	8/7/2015	NM	NM	NM	0.3	
EW12	8/19/2015	101.27	100.45	0.82	NA	
EW12	8/21/2015	NM	NM	NM	0.1	
EW12	9/4/2015	101.87	101.47	0.40	NA	
EW12	9/11/2015	NM	NM	NM	0.3	
EW12	9/21/2015	101.60	101.29	0.31	NA	
EW12	10/1/2015	NM	NM	NM	0.2	
EW12	10/8/2015	101.39	101.15	0.24	NA	
EW12	10/22/2015	101.52	101.23	0.29	NA	
EW12	11/2/2015	101.51	101.18	0.33	NA	
			Total L	NAPL Recovered	5.9	

Table 7

Well ID	Date	Depth to Water (feet) ¹	Depth to LNAPL (feet) ¹	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW13	11/4/2014	111.48	NP	0.00	NA	
EW13	12/11/2014	114.81	NP	0.00	NA	
EW13	12/23/2014	115.11	NP	0.00	NA	Groundwater extraction system shutdown pending carbon change-out
EW13	12/30/2014	107.34	NP	0.00	NA	$\label{thm:condition} Groundwater\ extraction\ system\ remained\ shutdown\ pending\ carbon\ change-out$
EW13	1/8/2015	107.27	NP	0.00	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW13	1/19/2015	107.33	NP	0.00	NA	Groundwater extraction system restarted after carbon change-out
EW13	1/22/2015	115.05	NP	0.00	NA	
EW13	1/30/2015	115.49	NP	0.00	NA	
EW13	2/3/2015	115.28	NP	0.00	NA	
EW13	2/13/2015	115.74	NP	0.00	NA	
EW13	2/17/2015	117.05	NP	0.00	NA	Groundwater extraction rate increased to 10 gpm
EW13	2/18/2015	119.19	NP	0.00	NA	
EW13	2/20/2015	119.37	NP	0.00	NA	
EW13	2/24/2015	119.50	NP	0.00	NA	
EW13	3/10/2015	120.13	NP	0.00	NA	
EW13	3/24/2015	116.72	NP	0.00	NA	
EW13	4/10/2015	118.55	NP	0.00	NA	
EW13	4/16/2015	120.92	NP	0.00	NA	
EW13	5/8/2015	107.18	NP	0.00	NA	Groundwater extraction pump turned off on 4/30/2015
EW13	5/21/2015	104.94	NP	0.00	NA	
EW13	6/3/2015	105.88	NP	0.00	NA	
EW13	6/16/2015	106.44	NP	0.00	NA	
EW13	7/8/2015	107.42	NP	0.00	NA	
EW13	7/21/2015	107.70	NP	0.00	NA	
EW13	7/29/2015	107.91	NP	0.00	NA	
EW13	8/5/2015	107.89	NP	0.00	NA	
EW13	8/19/2015	107.80	NP	0.00	NA	
EW13	9/4/2015	107.63	NP	0.00	NA	
EW13	9/21/2015	107.63	NP	0.00	NA	
EW13	10/8/2015	107.49	NP	0.00	NA	
EW13	10/22/2015	107.72	NP	0.00	NA	
EW13	11/2/2015	107.48	NP	0.00	NA	
			Total LI	NAPL Recovered	0.0	

Table 7

Well ID	Date	Depth to Water (feet) ¹	Depth to LNAPL (feet) ¹	LNAPL Thickness (feet)	Recovered LNAPL Volume (gallons)	Comments
EW14	11/4/2014	112.55	112.45	0.10	NA	
EW14	11/6/2014	NM	NM	NM	<0.1	
EW14	11/7/2014	112.54	112.49	0.05	NA	
EW14	11/11/2014	112.68	112.60	0.08	NA	
EW14	11/12/2014	112.91	112.87	0.04	NA	Temporary system shutdown due to alarm condition
EW14	11/17/2014	111.82	111.55	0.27	NA	
EW14	12/8/2014	112.89	112.85	0.04	NA	
EW14	12/11/2014	113.83	113.75	0.08	NA	
EW14	12/23/2014	113.74	113.65	0.09	NA	Groundwater extraction system shutdown pending carbon change-out
	12/20/2011		110.00	0.00		
EW14	12/30/2014	112.85	112.76	0.09	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW14	1/8/2015	112.77	112.71	0.06	NA	Groundwater extraction system remained shutdown pending carbon change-out
EW14	1/19/2015	112.92	112.78	0.14	NA	Groundwater extraction system restarted after carbon change-out
EW14	1/22/2015	113.80	113.72	0.08	NA	
EW14	1/30/2015	113.79	113.66	0.13	<0.1	
EW14	2/3/2015	113.74	113.65	0.09	NA	
EW14	2/13/2015	113.90	113.68	0.22	NA	
EW14	2/17/2015	113.85	113.79	0.06	NA	Groundwater extraction rate increased to 10 gpm
EW14	2/18/2015	114.29	114.21	0.08	NA	
EW14	2/20/2015	114.26	114.18	0.08	NA	
EW14	2/24/2015	114.25	114.21	0.04	NA	
EW14	3/10/2015	114.36	114.30	0.06	NA	
EW14	3/24/2015	114.41	114.36	0.05	NA	
EW14	3/31/2015	NM	NM	NM	<0.1	
EW14	4/10/2015	114.43	114.42	0.01	NA	
EW14	4/16/2015	114.47	114.44	0.03	NA	
EW14	5/8/2015	113.30	113.14	0.16	NA	Groundwater extraction pump turned off on 4/30/2015
EW14	5/21/2015	113.71	113.49	0.22	NA	
EW14	6/3/2015	113.72	113.50	0.22	0.2	
EW14	6/16/2015	113.71	113.58	0.13	0.1	
EW14	7/8/2015	113.71	113.62	0.09	NA	
EW14	7/21/2015	113.78	113.68	0.10	NA	
EW14	7/29/2015	113.83	113.72	0.11	NA	
EW14	8/5/2015	113.84	113.72	0.12	NA	
EW14	8/7/2015	NM	NM	NM	<0.1	
EW14	8/19/2015	113.80	113.70	0.10	NA	
EW14	9/4/2015	113.68	113.59	0.09	NA	
EW14	9/11/2015	NM	NM	NM	<0.1	
EW14	9/21/2015	113.43	113.38	0.05	NA	
EW14	10/8/2015	113.12	113.06	0.06	NA	
EW14	10/22/2015	113.48	113.39	0.09	NA	
EW14	11/2/2015	113.44	113.32	0.12	NA	
			Total L	NAPL Recovered	0.8	
			Total LNAPL Re	covered (all wells)	11.0	During November 2015
			Total LNAPL Re	covered (all wells)	380.7	Since system modification in October 2014

Notes:

Depth to water and depth to LNAPL measurements before December 2014 were not consistently recorded from the same benchmark location/elevation. Measurements were consistently recorded from the same benchmark location at the top of the well vault starting in December 2014.

NM - Not measured

NP - LNAPL was not present in a measurable quantity

NA - Not applicable

Table 8

Well Repair Summary Penta Wood Products Superfund Site Siren, Wisconsin

	Repaired Inner Well Casing	Replaced Well Cover	Extended Outer Protective Casing	Extended Inner Well Casing	Replaced Outer Protective Casing	Cut Down Inner Well Casing	Cut Down Outer Protective Casing	Regrade Around Well	Raised Outer Protective Casing	Abandoned Monitoring Point	Replaced Lock
Monitoring Well	ls										
MW1								Χ	Χ		Χ
MW2		Χ		Χ	Χ			Χ			X
MW3							X				Χ
MW4	Χ	Χ									Χ
MW5	Χ							X			Χ
MW6		Χ		Χ	X			Χ			Χ
MW6S		Χ		Χ	Χ			Χ			Χ
MW7							Χ				Χ
MW8							Χ				X X
MW9		Χ	Χ		Χ						Χ
MW10		Χ		Χ	Χ						Χ
MW10S		Χ		X	Χ						Χ
MW11											Χ
MW12						Χ	Χ				Χ
MW13		Χ					X				Χ
MW14											Χ
MW15											X
MW16											X
MW17											X
MW18	Χ										X
MW19		X	Х	V	V						X
MW20		Χ		X	X						X
MW21											X
MW22											X X
MW23 MW24											
MW25							Χ				X X
MW26						Χ	^				X
MW27						^					X
MW28						X					X
MW29						^					^
MW30											
MW31											

Soil Gas Monitoring Points

SG-22 (old) X





THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton 4101 Shuffel Street NW North Canton, OH 44720 Tel: (330)497-9396

TestAmerica Job ID: 240-57385-1

Client Project/Site: 86165-02-01, Penta Wood

For:

GHD Services Inc. 1801 Old Highway 8 NW Suite 114 St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson

Denise DHeckler

Authorized for release by: 11/10/2015 2:14:12 PM

Denise Heckler, Project Manager II (330)966-9477

denise.heckler@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

Toxicity Equivalent Factor (Dioxin)
Toxicity Equivalent Quotient (Dioxin)

TestAmerica Job ID: 240-57385-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
D	Surrogate or matrix spike recoveries were not obtained because the extract was diluted for analysis; also compounds analyzed at a
Х	dilution may be flagged with a D. Surrogate is outside control limits

Glossary

TEF

TEQ

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points

TestAmerica Canton

Case Narrative

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Job ID: 240-57385-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: GHD Services Inc.

Project: 86165-02-01, Penta Wood

Report Number: 240-57385-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 11/03/2015; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.8 C.

SEMIVOLATILE ORGANIC COMPOUNDS (GCMS)

Sample W-151102-TB-ME (240-57385-2) was analyzed for semivolatile organic compounds (GCMS) in accordance with EPA SW-846 Method 8270C. The samples were prepared on 11/04/2015 and analyzed on 11/08/2015.

Surrogates are added during the extraction process prior to dilution. When the sample is diluted, surrogate recoveries are diluted out and no corrective action is required.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP).

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

WISCONSIN DRO

Sample W-151102-TB-ME (240-57385-2) was analyzed for Wisconsin DRO in accordance with Wisconsin DNR Modified DRO. The samples were prepared on 11/04/2015 and analyzed on 11/06/2015.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP).

TestAmerica Canton 11/10/2015

Case Narrative

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Job ID: 240-57385-1 (Continued)

Laboratory: TestAmerica Canton (Continued)

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

CHLORINATED HERBICIDES

Samples W-151102-TB-MI (240-57385-1) and W-151102-TB-ME (240-57385-2) were analyzed for chlorinated herbicides in accordance with EPA SW-846 Method 8151A. The samples were prepared on 11/04/2015 and analyzed on 11/09/2015 and 11/10/2015.

Surrogates are added during the extraction process prior to dilution. When the sample dilution is 5X or greater, surrogate recoveries are diluted out and no corrective action is required.

Sample W-151102-TB-MI (240-57385-1)[4000X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Method Summary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Method	Method Description	Protocol	Laboratory
8270C	Semivolatile Organic Compounds (GC/MS)	SW846	TAL CAN
8151A	Herbicides (GC)	SW846	TAL PIT
WI-DRO	Wisconsin - Diesel Range Organics (GC)	WI-DRO	TAL CAN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates. WI-DRO = "Modified DRO: Method For Determining Diesel Range Organics", Wisconsin DNR, Publ-SW-141, September, 1995.

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396
TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

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Sample Summary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-57385-1	W-151102-TB-MI	Water	11/02/15 13:20	11/03/15 09:20
240-57385-2	W-151102-TB-ME	Water	11/02/15 13:30	11/03/15 09:20

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A A

Detection Summary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Client Sample ID: W-151102-TB-MI	Lab Sample ID: 240-57385-1

Analyte	Result Qualifier	LOQ	LOD Unit		Method	Prep Type
Pentachlorophenol	1100	99	15 ug/L	4000	8151A	Total/NA

Analyte	Result Qualifier	LOQ	LOD Unit	Dil Fac D Method	Prep Type
Pentachlorophenol	0.14	0.099	0.015 ug/L	4 8151A	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Client Sample ID: W-151102-TB-MI

Lab Sample ID: 240-57385-1

Date Collected: 11/02/15 13:20 Matrix: Water

Date Received: 11/03/15 09:20

Method: 8151A - Herbicide Analyte	s (GC) Result Qualifier	LOQ	LOD Unit	D Prepared	Analyzed	Dil Fac
Pentachlorophenol	1100	99	15 ug/L	11/04/15 17:10	11/10/15 06:47	4000
Surrogate	%Recovery Qualifier	Limits		Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid		32 - 140		11/04/15 17:10	11/10/15 06:47	4000

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Client Sample Results

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Lab Sample ID: 240-57385-2

Matrix: Water

Client Sample ID: W-151102-TB-ME Date Collected: 11/02/15 13:30

Date Received: 11/03/15 09:20

Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Naphthalene	<0.069		0.22	0.069	ug/L		11/04/15 09:00	11/08/15 00:15	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl (Surr)	65		29 - 110				11/04/15 09:00	11/08/15 00:15	1
2-Fluorophenol (Surr)	35		15 - 110				11/04/15 09:00	11/08/15 00:15	1
2,4,6-Tribromophenol (Surr)	69		21 - 128				11/04/15 09:00	11/08/15 00:15	1
Nitrobenzene-d5 (Surr)	68		31 - 110				11/04/15 09:00	11/08/15 00:15	1
Phenol-d5 (Surr)	20		10 - 110				11/04/15 09:00	11/08/15 00:15	1
To make a more aloud A. (Corrent)	64		31 - 115				11/04/15 09:00	11/08/15 00:15	1
Terphenyl-d14 (Surr)	61		31-115				11/04/13 09.00	11/00/13 00.13	,
			31-115				11/04/13 09.00	11/00/13 00:13	,
Method: 8151A - Herbicides	(GC)	Qualifier	11-115 LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Method: 8151A - Herbicides Analyte	(GC)	Qualifier		LOD 0.015		<u>D</u>			•
Method: 8151A - Herbicides Analyte Pentachlorophenol	(GC)		LOQ			<u>D</u>	Prepared	Analyzed	Dil Fac
Method: 8151A - Herbicides Analyte Pentachlorophenol Surrogate	(GC) Result 0.14					<u>D</u>	Prepared 11/04/15 17:10	Analyzed 11/09/15 12:19	Dil Fac
Method: 8151A - Herbicides Analyte Pentachlorophenol Surrogate 2,4-Dichlorophenylacetic acid	Result 0.14 %Recovery 86	Qualifier	LOQ 0.099 Limits 32 - 140			<u>D</u>	Prepared 11/04/15 17:10 Prepared	Analyzed 11/09/15 12:19 Analyzed	Dil Fac Dil Fac
Method: 8151A - Herbicides Analyte Pentachlorophenol Surrogate 2,4-Dichlorophenylacetic acid Method: WI-DRO - Wisconsir Analyte	(GC) Result 0.14 %Recovery 86	Qualifier	LOQ 0.099 Limits 32 - 140		ug/L	<u>D</u>	Prepared 11/04/15 17:10 Prepared	Analyzed 11/09/15 12:19 Analyzed	Dil Fac Dil Fac

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Surrogate Summary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Matrix: Water Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)							
		FBP	2FP	TBP	NBZ	PHL	TPH		
Lab Sample ID	Client Sample ID	(29-110)	(15-110)	(21-128)	(31-110)	(10-110)	(31-115)		
240-57385-2	W-151102-TB-ME	65	35	69	68	20	61		
LCS 240-205133/22-A	Lab Control Sample	75	66	82	98	56	89		
MB 240-205133/21-A	Method Blank	70	64	79	70	55	80		

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)

2FP = 2-Fluorophenol (Surr)

TBP = 2,4,6-Tribromophenol (Surr)

NBZ = Nitrobenzene-d5 (Surr)

PHL = Phenol-d5 (Surr)

TPH = Terphenyl-d14 (Surr)

Method: 8151A - Herbicides (GC)

Matrix: Water Prep Type: Total/NA

		DCPA1	DCPA2	t Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	(32-140)	(32-140)	
240-57385-1	W-151102-TB-MI	0 X D	0 X D	
240-57385-2	W-151102-TB-ME	86	77	
LCS 180-159325/2-A	Lab Control Sample	91	80	
LCSD 180-159325/3-A	Lab Control Sample Dup	96	90	
MB 180-159325/1-A	Method Blank	69	68	
MB 180-159325/1-A	Method Blank	77	76	

DCPA = 2,4-Dichlorophenylacetic acid

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Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Method: 8270C - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-205133/21-A **Client Sample ID: Method Blank Matrix: Water Prep Type: Total/NA** Analysis Batch: 205735 Prep Batch: 205133 Analysta

Result	Qualifier	LOQ	LOD	Unit	U	Prepared	Analyzed	DII Fac
<0.063		0.20	0.063	ug/L		11/04/15 09:00	11/07/15 19:32	1
MB	MB							
%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
70		29 - 110				11/04/15 09:00	11/07/15 19:32	1
64		15 - 110				11/04/15 09:00	11/07/15 19:32	1
79		21 - 128				11/04/15 09:00	11/07/15 19:32	1
70		31 - 110				11/04/15 09:00	11/07/15 19:32	1
55		10 - 110				11/04/15 09:00	11/07/15 19:32	1
80		31 - 115				11/04/15 09:00	11/07/15 19:32	1
	<0.063 MB %Recovery 70 64 79 70 55	MB MB %Recovery Qualifier 70 64 79 70 55					NB MB %Recovery Qualifier Limits Prepared 70 29 - 110 11/04/15 09:00 64 15 - 110 11/04/15 09:00 79 21 - 128 11/04/15 09:00 70 31 - 110 11/04/15 09:00 55 10 - 110 11/04/15 09:00	KB MB %Recovery Qualifier Limits Prepared Analyzed 70 29 - 110 11/04/15 09:00 11/07/15 19:32 64 15 - 110 11/04/15 09:00 11/07/15 19:32 79 21 - 128 11/04/15 09:00 11/07/15 19:32 70 31 - 110 11/04/15 09:00 11/07/15 19:32 55 10 - 110 11/04/15 09:00 11/07/15 19:32

Lab Sample ID: LCS 240-205133/22-A **Client Sample ID: Lab Control Sample Matrix: Water Prep Type: Total/NA**

Analysis Batch: 205735							Prep Batch: 205133
-	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Naphthalene	20.0	14.9	-	ug/L		75	52 - 120

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
2-Fluorobiphenyl (Surr)	75		29 - 110
2-Fluorophenol (Surr)	66		15 - 110
2,4,6-Tribromophenol (Surr)	82		21 - 128
Nitrobenzene-d5 (Surr)	98		31 - 110
Phenol-d5 (Surr)	56		10 - 110
Terphenyl-d14 (Surr)	89		31 - 115

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 180-159325/1-A Client Sample ID: Method Blank **Matrix: Water** Prep Type: Total/NA Analysis Batch: 159715 **Prep Batch: 159325**

7 that you batom 1001 10								. Top Batom	.00020
	MB	MB							
Analyte	Result	Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.016		0.10	0.016	ug/L		11/04/15 17:10	11/09/15 11:08	4
	MB	МВ							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	69		32 - 140				11/04/15 17:10	11/09/15 11:08	4

Lab Sample ID: MB 180-159325/1-A	Client Sample ID: Method Blank
Matrix: Water	Prep Type: Total/NA
Analysis Batch: 159715	Prep Batch: 159325

	MR MR							
Analyte	Result Qualifier	LOQ	LOD	Unit	D	Prepared	Analyzed	Dil Fac
Pentachlorophenol	<0.078	0.50	0.078	ug/L		11/04/15 17:10	11/09/15 11:55	20
	MB MB							

Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac <u>11/04/15 17:10</u> <u>11/09/15 11:55</u> 2,4-Dichlorophenylacetic acid 77 32 - 140

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Client: GHD Services Inc.

Analyte

Pentachlorophenol

Project/Site: 86165-02-01, Penta Wood

Method: 8151A - Herbicides (GC) (Continued)

Lab Sample ID: LCS 180-159325/2-A **Client Sample ID: Lab Control Sample** Prep Type: Total/NA

4.82

Matrix: Water Analysis Batch: 159715

Prep Batch: 159325 Spike LCS LCS %Rec. Added Result Qualifier Unit D %Rec Limits 5.00 40 - 140

96

ug/L

LCS LCS

Surrogate %Recovery Qualifier Limits 2,4-Dichlorophenylacetic acid 32 - 140 91

Lab Sample ID: LCSD 180-159325/3-A Client Sample ID: Lab Control Sample Dup

Matrix: Water

Prep Type: Total/NA Analysis Batch: 159715 **Prep Batch: 159325** LCSD LCSD RPD Spike %Rec. Analyte Added Result Qualifier Unit D %Rec Limits RPD Limit

40 - 140 30 Pentachlorophenol 5.00 ug/L 113 15 5.63

LCSD LCSD Surrogate %Recovery Qualifier Limits 2,4-Dichlorophenylacetic acid 32 - 140 96

Method: WI-DRO - Wisconsin - Diesel Range Organics (GC)

Lab Sample ID: MB 240-205085/2-A Client Sample ID: Method Blank **Matrix: Water** Prep Type: Total/NA Prep Batch: 205085

Analysis Batch: 205645

MB MB Analyte Result Qualifier LOQ LOD Unit Prepared Analyzed Dil Fac WI Diesel Range Organics (C10-C28) <0.050 0.10 0.050 mg/L 11/04/15 06:41 11/06/15 17:09

Lab Sample ID: LCS 240-205085/3-A **Client Sample ID: Lab Control Sample Matrix: Water** Prep Type: Total/NA

Analysis Batch: 205645

Prep Batch: 205085 LCS LCS Spike %Rec. Added Result Qualifier Limits Analyte Unit D %Rec 0.500 0.472 75 - 115 mg/L 94 WI Diesel Range Organics

(C10-C28)

Lab Sample ID: LCSD 240-205085/4-A **Client Sample ID: Lab Control Sample Dup**

Matrix: Water Analysis Batch: 205645

Prep Batch: 205085 Spike LCSD LCSD **RPD** %Rec. Added Analyte Result Qualifier Unit %Rec Limits **RPD** Limit 0.500 0.486 97 WI Diesel Range Organics mg/L 75 - 115

(C10-C28)

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Prep Type: Total/NA

QC Association Summary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

GC/MS Semi VOA

Prep Batch: 20513	205133	h: 2	atc	рΒ	re	P
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Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57385-2	W-151102-TB-ME	Total/NA	Water	3510C	
LCS 240-205133/22-A	Lab Control Sample	Total/NA	Water	3510C	
MB 240-205133/21-A	Method Blank	Total/NA	Water	3510C	

Analysis Batch: 205735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57385-2	W-151102-TB-ME	Total/NA	Water	8270C	205133
LCS 240-205133/22-A	Lab Control Sample	Total/NA	Water	8270C	205133
MB 240-205133/21-A	Method Blank	Total/NA	Water	8270C	205133

GC Semi VOA

Prep Batch: 159325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57385-1	W-151102-TB-MI	Total/NA	Water	8151A	
240-57385-2	W-151102-TB-ME	Total/NA	Water	8151A	
LCS 180-159325/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 180-159325/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	
MB 180-159325/1-A	Method Blank	Total/NA	Water	8151A	

Analysis Batch: 159715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57385-1	W-151102-TB-MI	Total/NA	Water	8151A	159325
240-57385-2	W-151102-TB-ME	Total/NA	Water	8151A	159325
LCS 180-159325/2-A	Lab Control Sample	Total/NA	Water	8151A	159325
LCSD 180-159325/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	159325
MB 180-159325/1-A	Method Blank	Total/NA	Water	8151A	159325
MB 180-159325/1-A	Method Blank	Total/NA	Water	8151A	159325

Prep Batch: 205085

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57385-2	W-151102-TB-ME	Total/NA	Water	3520C	_
LCS 240-205085/3-A	Lab Control Sample	Total/NA	Water	3520C	
LCSD 240-205085/4-A	Lab Control Sample Dup	Total/NA	Water	3520C	
MB 240-205085/2-A	Method Blank	Total/NA	Water	3520C	

Analysis Batch: 205645

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57385-2	W-151102-TB-ME	Total/NA	Water	WI-DRO	205085
LCS 240-205085/3-A	Lab Control Sample	Total/NA	Water	WI-DRO	205085
LCSD 240-205085/4-A	Lab Control Sample Dup	Total/NA	Water	WI-DRO	205085
MB 240-205085/2-A	Method Blank	Total/NA	Water	WI-DRO	205085

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Lab Chronicle

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Client Sample ID: W-151102-TB-MI

Lab Sample ID: 240-57385-1

Date Collected: 11/02/15 13:20 Date Received: 11/03/15 09:20 Matrix: Water

Batch Batch Dilution Batch Prepared Method or Analyzed **Prep Type** Type Run **Factor** Number Analyst Lab Total/NA Prep 8151A 159325 11/04/15 17:10 CBY TAL PIT Total/NA Analysis 8151A 4000 159715 11/10/15 06:47 JMO TAL PIT

Client Sample ID: W-151102-TB-ME Lab Sample ID: 240-57385-2

Date Collected: 11/02/15 13:30 Matrix: Water

Date Received: 11/03/15 09:20

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			205133	11/04/15 09:00	CS	TAL CAN
Total/NA	Analysis	8270C		1	205735	11/08/15 00:15	JMG	TAL CAN
Total/NA	Prep	8151A			159325	11/04/15 17:10	CBY	TAL PIT
Total/NA	Analysis	8151A		4	159715	11/09/15 12:19	JMO	TAL PIT
Total/NA	Prep	3520C			205085	11/04/15 06:41	SDE	TAL CAN
Total/NA	Analysis	WI-DRO		1	205645	11/06/15 18:04	DEB	TAL CAN

Laboratory References:

TAL CAN = TestAmerica Canton, 4101 Shuffel Street NW, North Canton, OH 44720, TEL (330)497-9396 TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

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Certification Summary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57385-1

Laboratory: TestAmerica Canton

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999518190	08-31-16

Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	998027800	08-31-16

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TestAmerica Laboratories, Inc.

CHAIN OF CUSTODY AND RECEIVING DOCUMENTS



4101 Shuffel Street, N.W. North Canton, OH 44720 Peops 31.749 f. 330.497.0772 www.testamericainc.com 11/10/2015

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CHAIN OF CUSTODY RECORD 1801 Old Highway 8 Northwest, Suite 114 ct. Drull Minnocola 55117, Tinited States

1801 Old Highway 8 Northwest, Suite 114 St. Paul, Minnesota 55112 United States ne: (651) 639-0913 Fax: (651) 639-0923

Phone: (651) 639-0913

COC NO. SP-01651 PAGE COF

(See Reverse Side for Instructions)

Project No/ Phase/Task Code:		aborator	Name:	Laboratory Name:	١		Lab Location:	SSOW ID:	oss	JW ID:	
-co-51/980		,		Z	子の元	55	/	VORTH (Fr	욋		
Project Name:	<u> </u>	Lab Contact:	; ;				Lab Quote No:		••	Cooler No:	
Project Location: S. R. M.		SAMPLE	S	CONTAINER QUANTITY & PRESERVATION	TAINER QUANTITY	i	ANALYS (She Back of	IS REQUESTED	Carrier	rier:	
Chemistry Contact:		(c)	(IDI	(1			ng L		1	Airbill No:	
Sampler(s): T, M GRAN		or Comp	bev i) bioA circ	,OS _s H) bio	Water (So		050 1441 050			Date Shipped:	
SAMPLE IDENTIFICATION Containers for each sample may be combined on one line)	DATE TIME (mm/dd//yy) (th.mm)		Unpreser	Mitric Acid Sulfuric A	(NaOH) Methanol/	Other:	20d 1M1	OSI COT		COMMENTS/ SPECIAL INSTRUCTIONS:	S/
1 W-15/602- TB- MI	19(5) 5/5/1	2	J			4	×		-		
2 W-15 1102- TB-ME	11/16 1330		47			0	XXX X				
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TAT Required in business days (use separate COCs for different TATs):	OCs for different TATs):		Te	Total Number of Containers:	r of Conta	iners:	Notes/ Special Requirements:	Requirements:			
ς.	□1 Week □2 Week Nother: STANOGRD	ORRO	All Sam	All Samples in Cooler must be on COC	er must b	9 on COC					
RELINQUISHED BY	COMPANY D	DATE,	TIME		*	RECEIVED BY	37	COMPANY		DATE	TIME
1. Timber John	(元)	2/15	1630		6	\mathcal{A}		7	11-	11-3-15	920
3 :/10		-		2.							
D/ 2 0		,	i	33							
95 Distribution: WHITE — Fully Executed Copy (CRA)	THE CHAIN OF CUSTODY IS A LEGAL DOCUMENT (CRA) YELLOW—Receiving Laboratory Conv.	Y IS A LEGA	L Docum	ENT — ALL FI	ELDS MUS	DS MUST BE COMPL	-ALL FIELDS MUST BE COMPLETED ACCURATELY DINIK - Shippor				
		21 S S.	Jacob	ych	\ i	ဝါးမှာပင်း	GOLDEINNO	GOLDEINROD Sampling Crew		CRA Form: COC-10A (20110804)	(20110804)

TestAmerica Canton Sample Receipt Form/Narrative	Login #:
Canton Facility Client COA Site Name	Cooler unpacked by:
Cooler Received on 11-3-15 Opened on 11-3-15	
FedEx: 1st Grd (EXP) UPS FAS Stetson Client Drop Off TestAmerica	Courier Other
Receipt After-hours: Drop-off Date/Time Storage L	ocation
	Other
Packing material used: <u>Bubble Wrap</u> Foam Plastic Bag None (COOLANT: Wet Ice Blue Ice Dry Ice Water None	Other
1. Cooler temperature upon receipt	
IR GUN# 53 (CF +0.1 °C) Observed Cooler Temp. 3-7 °C Corrected IR GUN# 48 (CF -0.3 °C) Observed Cooler Temp. °C Corrected IR GUN# 5 (CF +0.4 °C) Observed Cooler Temp. °C Corrected IR GUN# 5 (CF +0.4 °C) Observed Cooler Temp. °C Corrected IR GUN# 8 (CF -0.5 °C) Observed Cooler Temp. °C Corrected IR GUN# 8 (CF -0.5 °C) Observed Cooler Temp. °C Corrected IR GUN# 8 (CF -0.5 °C) Observed Cooler Temp. °C Corrected IR GUN# 8 (CF -0.5 °C) Observed Cooler Temp. °C Corrected IR GUN# 8 (CF -0.5 °C) Observed Cooler Temp. °C Corrected IR GUN# 8 (CF -0.5 °C) Observed Cooler Temp. °C Corrected IR GUN# 8 (CF +0.4 °C) Observed Cooler Temp. °C Corrected IR GUN# 8 (CF +0.4 °C) Observed Cooler Temp. °C Corrected IR GUN# 8 (CF +0.4 °C) Observed Cooler Temp. °C Corrected IR GUN# 8 (CF +0.4 °C) Observed Cooler Temp. °C Corrected IR GUN# 8 (CF +0.4 °C) Observed Cooler Temp. °C Corrected IR GUN# 8 (CF +0.4 °C) Observed Cooler Temp. °C Corrected IR GUN# 8 (CF +0.4 °C) Observed Cooler Temp. °C Corrected IT GUN# 9 (CF +0.4 °C) Observed Cooler Temp. °C Corrected IT GUN# 9 (CF +0.4 °C) Observed Cooler Temp. °C Corrected IT GUN# 9 (CF +0.4 °C) Observed Cooler Temp. °C Corrected IT GUN# 9 (CF +0.4 °C) Observed Cooler Temp. °C Corrected IT GUN# 9 (CF +0.4 °C) Observed Cooler Temp. °C Corrected IT GUN# 9 (CF +0.4 °C) Observed Cooler Temp. °C Cooler Supplementation of Cooler (S)? Trip Blank Lot # User Supplementation of Cooler (S) observed Cooler Temp. °C Cooler Supplementation of Cooler (S)? Trip Blank Lot # User Supplementation of Cooler (S) observed Cooler Temp. °C Cooler	Cooler Temp°C
Contacted PM Date by via `Concerning	Verbal Voice Mail Other
14. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES	Samples processed by:
·	
15. SAMPLE CONDITION	
LID. SAMELIK COMULTAN	
	ded holding time had expired.
Sample(s) were received after the recommend gample(s) were	received in a broken confainer.
Sample(s) were received after the recommend sample(s) were	ded holding time had expired. received in a broken container. >6 mm in diameter. (Notify PM)
Sample(s) were received after the recommend gample(s) were	received in a broken confainer.
Sample(s) were received after the recommend sample(s) were Sample(s) were received with bubble 16. SAMPLE PRESERVATION	received in a broken confainer.

Login Sample Receipt Checklist

Client: GHD Services Inc. Job Number: 240-57385-1

Login Number: 57385
List Source: TestAmerica Pittsburgh
List Number: 2
List Creation: 11/04/15 05:27 PM

Creator: Lonzo, Michael A

Creator. Lonzo, Michael A		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton 4101 Shuffel Street NW North Canton, OH 44720 Tel: (330)497-9396

TestAmerica Job ID: 240-57386-1

Client Project/Site: 86165-02-01, Penta Wood

For:

GHD Services Inc. 1801 Old Highway 8 NW Suite 114 St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson

Jenuse DHeckler

Authorized for release by: 11/11/2015 8:34:11 AM

Denise Heckler, Project Manager II (330)966-9477

denise.heckler@testamericainc.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: GHD Services Inc. Project/Site: 86165-02-01, Penta Wood TestAmerica Job ID: 240-57386-1

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Definitions/Glossary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

Toxicity Equivalent Quotient (Dioxin)

TestAmerica Job ID: 240-57386-1

Glossary

TEQ

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)

TestAmerica Canton

Case Narrative

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57386-1

Job ID: 240-57386-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: GHD Services Inc.

Project: 86165-02-01, Penta Wood

Report Number: 240-57386-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 11/03/2015; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.8 C.

CHLORINATED HERBICIDES

Sample W-151102-TB-BG (240-57386-1) was analyzed for chlorinated herbicides in accordance with EPA SW-846 Method 8151A. The samples were prepared on 11/04/2015 and analyzed on 11/09/2015.

Surrogates are added during the extraction process prior to dilution. When the sample dilution is 5X or greater, surrogate recoveries are diluted out and no corrective action is required.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP).

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

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Method Summary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57386-1

Method	Method Description	Protocol	Laboratory
8151A	Herbicides (GC)	SW846	TAL PIT

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

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Sample Summary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57386-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-57386-1	W-151102-TB-BG	Water	11/02/15 13:40	11/03/15 09:20

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Detection Summary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57386-1

Client Sample ID: W-151102-TB-BG Lab Sample ID: 240-57386-1

Analyte	Result Qualifier	LOQ	LOD Unit	Dil Fac D Method	Prep Type
Pentachlorophenol	2.7	0.097	0.015 ug/L	4 8151A	Total/NA

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Client Sample Results

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

Client Sample ID: W-151102-TB-BG

TestAmerica Job ID: 240-57386-1

Lab Sample ID: 240-57386-1

. Matrix: Water

Date Collected: 11/02/15 13:40 Date Received: 11/03/15 09:20

Method: 8151A - Herbicides (GC)

 Analyte
 Result Pentachlorophenol
 Qualifier Qualifier
 LOQ LOD Unit Ug/L
 Unit Ug/L
 D Indicated Prepared Prepared Indicated Indicat

g

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Surrogate Summary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57386-1

Method: 8151A - Herbicides (GC)

Matrix: Water Prep Type: Total/NA

_			Percen	t Surrogate Recovery (Acceptance Limits)
		DCPA1	DCPA2	
Lab Sample ID	Client Sample ID	(32-140)	(32-140)	
240-57386-1	W-151102-TB-BG	85	77	
LCS 180-159325/2-A	Lab Control Sample	91		
LCSD 180-159325/3-A	Lab Control Sample Dup	96		
MB 180-159325/1-A	Method Blank	69		
MB 180-159325/1-A	Method Blank	77		
Surrogate Legend				
DCPA = 2,4-Dichloroph	nenylacetic acid			

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TestAmerica Job ID: 240-57386-1

Client Sample ID: Method Blank

11/04/15 17:10 11/09/15 11:55

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Type: Total/NA

Prep Batch: 159325

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 180-159325/1-A Client Sample ID: Method Blank **Matrix: Water** Prep Type: Total/NA **Prep Batch: 159325**

Analysis Batch: 159715 MB MB

Analyte Result Qualifier LOQ LOD Unit Prepared Analyzed Dil Fac <u>11/04/15 17:10</u> <u>11/09/15 11:08</u> Pentachlorophenol <0.016 0.10 0.016 ug/L

MB MB

%Recovery Surrogate Qualifier Limits Prepared Analyzed Dil Fac 2,4-Dichlorophenylacetic acid 69 32 - 140 11/04/15 17:10 11/09/15 11:08

Lab Sample ID: MB 180-159325/1-A

Matrix: Water

Analysis Batch: 159715

Prep Batch: 159325 MB MB LOD Unit Analyte Result Qualifier LOQ Prepared Analyzed Dil Fac

Pentachlorophenol 0.50 0.078 ug/L <0.078

MB MB

Dil Fac Surrogate %Recovery Qualifier Limits Prepared Analyzed 2,4-Dichlorophenylacetic acid 32 - 140 11/04/15 17:10 11/09/15 11:55

Lab Sample ID: LCS 180-159325/2-A

Matrix: Water

Analysis Batch: 159715

Spike LCS LCS %Rec. Added Result Qualifier Unit %Rec Limits Pentachlorophenol 5.00 4.82 ug/L 40 - 140

LCS LCS

Surrogate %Recovery Qualifier Limits 2,4-Dichlorophenylacetic acid 91 32 - 140

Lab Sample ID: LCSD 180-159325/3-A

Matrix: Water

Prep Type: Total/NA **Analysis Batch: 159715 Prep Batch: 159325** Spike LCSD LCSD %Rec. **RPD** Analyte Added Result Qualifier Unit %Rec Limits RPD Limit Pentachlorophenol 5.00 5.63 ug/L 113 40 - 140

LCSD LCSD

%Recovery Qualifier Surrogate Limits 2,4-Dichlorophenylacetic acid 32 - 140 96

QC Association Summary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57386-1

GC Semi VOA

Prep Batch: 159325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57386-1	W-151102-TB-BG	Total/NA	Water	8151A	
LCS 180-159325/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 180-159325/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	
MB 180-159325/1-A	Method Blank	Total/NA	Water	8151A	

Analysis Batch: 159715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57386-1	W-151102-TB-BG	Total/NA	Water	8151A	159325
LCS 180-159325/2-A	Lab Control Sample	Total/NA	Water	8151A	159325
LCSD 180-159325/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	159325
MB 180-159325/1-A	Method Blank	Total/NA	Water	8151A	159325
MB 180-159325/1-A	Method Blank	Total/NA	Water	8151A	159325

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Lab Chronicle

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57386-1

Lab Sample ID: 240-57386-1

Matrix: Water

Client Sample ID: W-151102-TB-BG
Date Collected: 11/02/15 13:40

Date Received: 11/03/15 09:20

١		Batch	Batch		Dilution	Batch	Prepared		
	Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
	Total/NA	Prep	8151A			159325	11/04/15 17:10	CBY	TAL PIT
l	Total/NA	Analysis	8151A		4	159715	11/09/15 13:07	JMO	TAL PIT

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

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Certification Summary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57386-1

Laboratory: TestAmerica Canton

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999518190	08-31-16

Laboratory: TestAmerica Pittsburgh The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	998027800	08-31-16



TestAmerica Laboratories, Inc.

CHAIN OF CUSTODY AND RECEIVING DOCUMENTS



240-57386 Chain of Custody

NESTOG	とうつつの

COC NO.: **SP-** 01652
PAGE OF

(See Reverse Side for Instructions) CHAIN OF CUSTODY RECORD
3.7/C3.8 Fax: (651) 639-0923 St. Paul, Minnesota 55112 United States Phone: (651) 639-0913 Laboratory Name:

		1	(***	· and · anna ·	1) 200 (2					
Project No/ Phase/Task Code: $(\sqrt{8}/6)/(\sqrt{5} - \sqrt{2})$		Laboratory Name:		TEST AMERICA		ab Location:	Lab Location:	¥	SSOW ID:	
Project Name: P Z-r74 [~000)		Lab Contact:				Lab Quote No:			Cooler No:	
Project Location: S, RE N, WL		SAMPLE TYPE	CONT	CONTAINER QUANTITY & PRESERVATION		ANALYS (See Back of	ANALYSIS REQUESTED (See Back of COC for Definitions)		Carrier:	
Sampler(s): (B) CRNN CRNN CRNN CAMPORT	2HD. Cam	ode k of COC) or Comp (C)	(IDH) bioA oiro	hoid (H ₂ SO ₄) lydroxide Water (Soil g-SXf-g, 1xX5-g	tainers/Sample				Airbill No: Date Shipped:	
SAMPLE IDENTIFICATION (Containers for each sample may be combined on one line)	DATE TIME (hh:mm)		Unpreser Hydrochl Nitric Aci	Sodium P (NaOH) Methanol	Other:	10.19		MS/MSD F	COMMENTS/ SPECIAL INSTRUCTIONS:	ENTS/ TRUCTIONS:
1 W-151102-TS-BG	11/2/15/1940	<i>₽</i>	7		7					
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		ecelvilig Lab	oratory copy	PINK — Snipper	ber	GOLDENKOL	GOLDENKOD Sampling Crew	_	CRA Form: COC	CRA Form: COC-10A (20110804)

TestAmerica Canton San Canton Facility	nple Receipt Form/Narrative	Logir	1#: <u></u>
Client CAA	Site Name_		Cooler unpacked by:
Cooler Received on 11-3	-15 Opened on 11-3	[1
FedEx: 1st Grd (Exp) U	PS FAS Stetson Client Drop Off T	estAmerica Courier	Other
Receipt After-hours: Drop-		Storage Location	
TestAmerica Cooler #			
Packing material used:		None Other	
	et Ice Blue Ice Dry Ice Water	None	
1. Cooler temperature upo			
IR GUN# 53 (CF+0 IR GUN# 48 (CF-0 IR GUN# 5 (CF+6 IR GUN# 5 (CF+6 IR GUN# 8 (CF-0 2. Were custody seals on t-Were custody seals on 5 -Were custody seals on 5 -Were custody seals on 6 -Were custody seals on 6 -Were custody seals on 7 -Were custody papers according 5 -Were the custody papers 6 -Was/were the person(s) -Was/were the person(s) -Could all bottle labels be 9 -Were correct bottle(s) us 10 -Sufficient quantity rece 11 -Were sample(s) at the could 12 -Were VOAs on the COC 13 -Were air bubbles >6 mm	Observed Cooler Temp. 3-7 °C Observed Cooler Temp. 3°C Observed Cooler (s)? 3°C Observed Cooler (s) Observed Cooler (s) Observed Cooler (s) Observed Observe	Corrected Cooler Te Cooler	mp°C
• •	in the cooler(s)? Trip Blank Lot #		pice Mail Other
			Samples processed by:
14. CHAIN OF COSTOD	Y & SAMPLE DISCREPANCIES		
	·		
15. SAMPLE CONDITION Sample(s) Sample(s) Sample(s)	were received after th	were received	ng time had expired. in a broken container. idiameter. (Notify PM)
Sample(s)	were received after th	were received	in a broken container.
Sample(s)Sample(s)	were received after th	were received with bubble >6 mm in	in a broken container.

Login Sample Receipt Checklist

Client: GHD Services Inc. Job Number: 240-57386-1

Login Number: 57386
List Source: TestAmerica Pittsburgh
List Number: 2
List Creation: 11/04/15 05:27 PM

Creator: Lonzo, Michael A

Creator: Lonzo, Michael A		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton 4101 Shuffel Street NW North Canton, OH 44720 Tel: (330)497-9396

TestAmerica Job ID: 240-57811-1

Client Project/Site: 86165-02-01, Penta Wood

For:

GHD Services Inc. 1801 Old Highway 8 NW Suite 114 St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson

Denise DHeckler

Authorized for release by: 11/20/2015 9:43:32 AM

Denise Heckler, Project Manager II (330)966-9477

denise.heckler@testamericainc.com

.....LINKS

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Definitions/Glossary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

Toxicity Equivalent Factor (Dioxin)

Toxicity Equivalent Quotient (Dioxin)

TestAmerica Job ID: 240-57811-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
^c	CCV Recovery is outside acceptance limits.
*	RPD of the LCS and LCSD exceeds the control limits
J	Reported value was between the limit of detection and the limit of quantitation.

Glossary

TEF

TEQ

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points

Case Narrative

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

Job ID: 240-57811-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: GHD Services Inc.

Project: 86165-02-01, Penta Wood

Report Number: 240-57811-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 11/12/2015; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 3.2 C.

CHLORINATED HERBICIDES

Sample W-151110-PS-WE (240-57811-1) was analyzed for chlorinated herbicides in accordance with EPA SW-846 Method 8151A. The samples were prepared on 11/14/2015 and analyzed on 11/18/2015.

Surrogates are added during the extraction process prior to dilution. When the sample dilution is 5X or greater, surrogate recoveries are diluted out and no corrective action is required.

Pentachlorophenol exceeded the RPD limit for LCSD 180-160497/3-A.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 180-160497.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TestAmerica Job ID: 240-57811-1

Method Summary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57811-1

Method	Method Description	Protocol	Laboratory
8151A	Herbicides (GC)	SW846	TAL PIT

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

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Sample Summary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57811-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-57811-1	W-151110-PS-WE	Water	11/10/15 13:30	11/12/15 09:15

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Detection Summary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57811-1

Client Sample ID: W-151110-PS-WE Lab Sample ID: 240-57811-1

Analyte	Result Qualifier	LOQ	LOD Unit	Dil Fac D Method	Prep Type
Pentachlorophenol	0.047 J*	0.094	0.015 ug/L	4 8151A	Total/NA

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Client Sample Results

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

Client Sample ID: W-151110-PS-WE

TestAmerica Job ID: 240-57811-1

Lab Sample ID: 240-57811-1

Matrix: Water

Date Collected: 11/10/15 13:30 Date Received: 11/12/15 09:15

Method: 8151A - Herbicides (GC)

 Analyte
 Result Pentachlorophenol
 Qualifier J*
 LOQ LOD Unit Ug/L
 Unit Ug/L
 D Prepared 11/14/15 10:30
 Analyzed Analyzed 11/18/15 18:23
 Dil Fac 11/14/15 10:30

 Surrogate
 %Recovery 2,4-Dichlorophenylacetic acid
 Qualifier 62
 Limits 7c
 Prepared 11/14/15 10:30
 Analyzed 71/18/15 18:23
 Dil Fac 4

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Surrogate Summary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57811-1

Method: 8151A - Herbicides (GC)

Matrix: Water Prep Type: Total/NA

			Percent Surrogate Recovery (Acceptance Limit
		DCPA1	
ab Sample ID	Client Sample ID	(32-140)	
240-57811-1	W-151110-PS-WE	62 ^c	
LCSD 180-160497/3-A	Lab Control Sample Dup	102	
Surrogate Legend			

Method: 8151A - Herbicides (GC)

Matrix: Water Prep Type: Total/NA

-			Percent Surrogate Recovery (Acceptance Limits)
		DCPA2	
Lab Sample ID	Client Sample ID	(32-140)	
LCS 180-160497/2-A	Lab Control Sample	79	
MB 180-160497/1-A	Method Blank	44	
MB 180-160497/1-A	Method Blank	55	
Surrogate Legend			
DCPA = 2,4-Dichlorop	phenylacetic acid		

TestAmerica Canton

Page 9 of 17

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| 4

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57811-1

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 180-160497/1-A Client Sample ID: Method Blank **Matrix: Water** Prep Type: Total/NA

Analysis Batch: 160918 Prep Batch: 160497

MB MB Analyte Result Qualifier LOQ LOD Unit Prepared Analyzed Dil Fac

<u>11/14/15 10:30</u> <u>11/18/15 16:23</u> Pentachlorophenol 0.50 0.078 ug/L <0.078

MB MB %Recovery Surrogate Qualifier Limits Prepared Analyzed Dil Fac 2,4-Dichlorophenylacetic acid 55 32 - 140 <u>11/14/15 10:30</u> <u>11/18/15 16:23</u>

Lab Sample ID: MB 180-160497/1-A Client Sample ID: Method Blank **Matrix: Water** Prep Type: Total/NA

Prep Batch: 160497 Analysis Batch: 160918

MB MB LOD Unit Analyte Result Qualifier LOQ Prepared Analyzed Dil Fac 0.10 <u>11/14/15 10:30</u> <u>11/18/15 17:59</u> Pentachlorophenol 0.016 ug/L <0.016

MB MB Dil Fac Surrogate %Recovery Qualifier Limits Prepared Analyzed

2,4-Dichlorophenylacetic acid 32 - 140 11/14/15 10:30 11/18/15 17:59 44

Lab Sample ID: LCS 180-160497/2-A **Client Sample ID: Lab Control Sample Matrix: Water**

Prep Type: Total/NA Analysis Batch: 160918 **Prep Batch: 160497**

LCS LCS Spike %Rec. Added Result Qualifier Unit %Rec Limits

Pentachlorophenol 5.00 4.55 ug/L 40 - 140 LCS LCS

Surrogate %Recovery Qualifier Limits 2,4-Dichlorophenylacetic acid 79 32 - 140

Lab Sample ID: LCSD 180-160497/3-A **Client Sample ID: Lab Control Sample Dup Matrix: Water** Prep Type: Total/NA

Analysis Batch: 160918 Prep Batch: 160497 Spike LCSD LCSD %Rec. **RPD**

Analyte Added Result Qualifier Unit %Rec Limits RPD Limit Pentachlorophenol 5.00 6.89 ug/L 138 40 - 140

LCSD LCSD %Recovery Qualifier Limits

Surrogate 2,4-Dichlorophenylacetic acid 32 - 140 102

QC Association Summary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57811-1

GC Semi VOA

Prep Batch: 160497

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57811-1	W-151110-PS-WE	Total/NA	Water	8151A	
LCS 180-160497/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 180-160497/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	
MB 180-160497/1-A	Method Blank	Total/NA	Water	8151A	

Analysis Batch: 160918

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-57811-1	W-151110-PS-WE	Total/NA	Water	8151A	160497
LCS 180-160497/2-A	Lab Control Sample	Total/NA	Water	8151A	160497
LCSD 180-160497/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	160497
MB 180-160497/1-A	Method Blank	Total/NA	Water	8151A	160497
MB 180-160497/1-A	Method Blank	Total/NA	Water	8151A	160497

Lab Chronicle

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57811-1

Lab Sample ID: 240-57811-1

Matrix: Water

Client Sample ID: W-151110-PS-WE

Date Collected: 11/10/15 13:30 Date Received: 11/12/15 09:15

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			160497	11/14/15 10:30	CBY	TAL PIT
Total/NA	Analysis	8151A		4	160918	11/18/15 18:23	JMO	TAL PIT

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Certification Summary

Client: GHD Services Inc.

Project/Site: 86165-02-01, Penta Wood

TestAmerica Job ID: 240-57811-1

Laboratory: TestAmerica Canton

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999518190	08-31-16

Laboratory: TestAmerica Pittsburgh The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	998027800	08-31-16



TestAmerica Laboratories, Inc.

CHAIN OF CUSTODY AND RECEIVING DOCUMENTS



240-57811 Chain of Custody

Page 14 of 17 11/20/2015
4101 Shuffel Street, N.W. North Canton, OH 44720 tel 330.497.9396 fax 330.497.0772 www.testamericainc.com

Chain rogram: Dw NPDES
Site Contact: Lab Contact:
ound Time] WORKING DAYS >= STRN DAY
· · · · · · · · · · · · · · · · · · ·
Sample Sample (C=Comp.) Bate Time G=Grab) Matrix Cont.
11-10,15 1330 G W 2 WM
Preservation Used: 1≠ Ice 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Please List any EPA Waste Codes for the sample in the
Poison B Unkrown
)
ody Seal No.: [Cooler Temp. (°C): Obs'd
Company: (C) Date/Time: Received by:
1
Company: Date/Time: Received in Laboratory by:
and the second s
15

TestAmerica Canton				1/ XE/ 11
	Sample Receipt Form	ı/Narrative	Logi	n#:_69511
Canton Facility				
Client GUD		Site Name		Cooler unpacked by:
Cooler Received on	11.17-15	Opened on 11-12	-()	
	UPS FAS Stetson		America Courier	Other
Receipt After-hours: I			Storage Location_	other
	Foam Bo		ox Other	
TestAmerica Cooler #_				
	sed: Bubble Wrap		· · · · · · · · · · · · · · · · · · ·	
COOLANT:	Wet Ice Blue Ice	Dry Ice Water 1	lone	
1. Cooler temperature	upon receipt			5 4
IR GUN# 53 (C	F + 0.1 °C) Observed (Cooler Temp. 3. Z_°C (Corrected Cooler To	emp. <u>3-3 °</u> C
IR GUN# 48 (C	F -0.3 °C) Observed C	Cooler Temp°C (Corrected Cooler To	emp°C ☐See Multiple
IR GUN# 5 — (C	F +0.4 °C) Observed C	Cooler Temp°C 	Corrected Cooler T	emp°C Cooler Form
IR GUN# 8 (C	F -0.5 °C) Observed C	Cooler Temp°C(Corrected Cooler To	emp°C
2. Were custody seals	on the outside of the coo	oler(s)? If Yes Quan	ity @	8 No
-Were custody seal	ls on the outside of the co	ooler(s) signed & dated?	Ye.	8 No NA
	ls on the bottle(s) or bottl		Ye	s (No
	lip attached to the cooler			s No
	accompany the sample(s			s ² No
		ned in the appropriate plac		No No
		amples clearly identified o		I
	re in good condition (Unb			
		•	V	} No .
.,	els be reconciled with the			3
9. Were correct bottle			يقي ا	y No
	received to perform ind		ίζe	No No
	he correct pH upon recei	ipt?	Yes	F
12. Were VOAs on the		· · · · · · · · · · · · · · · · · · ·		S CNO
13. Were air bubbles >				No MA
14. Was a trip blank pro	esent in the cooler(s)? T	rip Blank Lot#	Yes	
Contacted PM	Date	by	via Verbal V	Voice Mail Other
Concerning				
				Gld h
14. CHAIN OF CUST	ODY & SAMPLE DIS	CREPANCIES		Samples processed by:
	·			
15. SAMPLE CONDI	TION			
Sample(s)	TION	were received after the		
	TION		were received	ing time had expired. I in a broken container.

Ref: SOP NC-SC-0005, Sample Receiving X:\X-Drive Document Control\SOPs\Work Instructions\Word Version Work Instructions\WI-NC-099V-102115 Cooler Receipt Form.doc djl

were further preserved in the laboratory.

Preservative(s) added/Lot number(s):

16. SAMPLE PRESERVATION

Sample(s) _____ Time preserved:

Login Sample Receipt Checklist

Client: GHD Services Inc. Job Number: 240-57811-1

Login Number: 57811 List Source: TestAmerica Pittsburgh
List Number: 2 List Creation: 11/13/15 02:21 PM

Creator: Lonzo, Michael A

Creator. Lonzo, Michael A		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Canton 4101 Shuffel Street NW North Canton, OH 44720 Tel: (330)497-9396

TestAmerica Job ID: 240-58034-1

Client Project/Site: 86165-02-07, Penta Wood

For:

GHD Services Inc. 1801 Old Highway 8 NW Suite 114 St. Paul, Minnesota 55112

Attn: Mr. Grant Anderson

Denise DHeckler

Authorized for release by: 11/24/2015 4:06:19 PM

Denise Heckler, Project Manager II (330)966-9477

denise.heckler@testamericainc.com

.....LINKS

Review your project results through

Total Access

Have a Question?



Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: GHD Services Inc. Project/Site: 86165-02-07, Penta Wood TestAmerica Job ID: 240-58034-1

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Definitions/Glossary

Client: GHD Services Inc.

Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

Qualifiers

GC Semi VOA

^c CCV Recovery is outside acceptance limits.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
0.45	

%R Percent Recovery
CFL Contains Free Liquid
CNF Contains no Free Liquid

DER Duplicate error ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision level concentration
MDA Minimum detectable activity
EDL Estimated Detection Limit

MDC Minimum detectable concentration

MDL Method Detection Limit
ML Minimum Level (Dioxin)
NC Not Calculated

ND Not detected at the reporting limit (or MDL or EDL if shown)

PQL Practical Quantitation Limit

QC Quality Control RER Relative error ratio

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

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Case Narrative

Client: GHD Services Inc.

Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

Job ID: 240-58034-1

Laboratory: TestAmerica Canton

Narrative

CASE NARRATIVE

Client: GHD Services Inc.

Project: 86165-02-07, Penta Wood

Report Number: 240-58034-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica Canton attests to the validity of the laboratory data generated by TestAmerica facilities reported herein. All analyses performed by TestAmerica facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the application methods. TestAmerica's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

All solid sample results are reported on an "as received" basis unless otherwise indicated by the presence of a % solids value in the method header.

This laboratory report is confidential and is intended for the sole use of TestAmerica and its client.

RECEIPT

The samples were received on 11/18/2015; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 2.6 C.

CHLORINATED HERBICIDES

Sample W-151117-TB-WE (240-58034-1) was analyzed for chlorinated herbicides in accordance with EPA SW-846 Method 8151A. The samples were prepared on 11/19/2015 and analyzed on 11/20/2015.

Surrogates are added during the extraction process prior to dilution. When the sample dilution is 5X or greater, surrogate recoveries are diluted out and no corrective action is required.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with analytical batch 180-161120.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Method Summary

Client: GHD Services Inc.

Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

Method	Method Description	Protocol	Laboratory
8151A	Herbicides (GC)	SW846	TAL PIT

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

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Sample Summary

Client: GHD Services Inc.

Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-58034-1	W-151117-TB-WE	Water	11/17/15 14:30	11/18/15 10:00

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Detection Summary

Client: GHD Services Inc.

Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

Client Sample ID: W-151117-TB-WE Lab Sample ID: 240-58034-1

Analyte	Result Qualifier	LOQ	LOD Unit	Dil Fac D Method	Prep Type
Pentachlorophenol	0.16	0.096	0.015 ug/L	4 8151A	Total/NA

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Client Sample Results

Client: GHD Services Inc.

Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

Client Sample ID: W-151117-TB-WE Lab Sample ID: 240-58034-1 **Matrix: Water**

Date Collected: 11/17/15 14:30

Date Received: 11/18/15 10:00

Method: 8151A - Herbicides Analyte	(GC) Result Qualifier	LOQ	LOD Unit	D Prepared	Analyzed	Dil Fac
Pentachlorophenol	0.16	0.096	0.015 ug/L	11/19/15 16:00	11/20/15 21:42	4
Surrogate	%Recovery Qualifier	Limits		Prepared	Analyzed	Dil Fac
2,4-Dichlorophenylacetic acid	97 [^] c	32 - 140		11/19/15 16:00	11/20/15 21:42	4

Surrogate Summary

Client: GHD Services Inc.

Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

Method: 8151A - Herbicides (GC)

Matrix: Water Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)				
		DCPA1	DCPA2			
Lab Sample ID	Client Sample ID	(32-140)	(32-140)			
240-58034-1	W-151117-TB-WE	97 ^c	91			
LCS 180-161120/2-A	Lab Control Sample	82	80			
LCSD 180-161120/3-A	Lab Control Sample Dup	89	87			
MB 180-161120/1-A	Method Blank	82	84			
Surrogate Legend						
DCPA = 2,4-Dichloroph	nenylacetic acid					

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TestAmerica Job ID: 240-58034-1

Client: GHD Services Inc.

Project/Site: 86165-02-07, Penta Wood

Method: 8151A - Herbicides (GC)

Lab Sample ID: MB 180-161120/1-A

Client Sample ID: Lab Control Sample

Client Sample ID: Lab Control Sample Dup

Client Sample ID: Method Blank Prep Type: Total/NA

Prep Batch: 161120

Prep Type: Total/NA

Prep Type: Total/NA

MB MB Result Qualifier LOQ LOD Unit Prepared Analyzed Dil Fac

0.10 11/19/15 16:00 11/20/15 21:18 <0.016 0.016 ug/L

MB MB Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 2,4-Dichlorophenylacetic acid 84 32 - 140 <u>11/19/15 16:00</u> <u>11/20/15 21:18</u>

Lab Sample ID: LCS 180-161120/2-A

Matrix: Water

Analysis Batch: 161161

Matrix: Water

Pentachlorophenol

Analyte

Analysis Batch: 161161

Prep Batch: 161120 LCS LCS Spike %Rec. Added Analyte Result Qualifier Unit D %Rec Limits 40 - 140 Pentachlorophenol 5.00 4.32 ug/L 86

LCS LCS %Recovery Qualifier Limits 2,4-Dichlorophenylacetic acid 32 - 140

Lab Sample ID: LCSD 180-161120/3-A

Matrix: Water

Surrogate

Analysis Batch: 161161

Prep Batch: 161120 Spike LCSD LCSD %Rec. **RPD** Added Result Qualifier Unit %Rec Limits RPD Limit 5.00 5.22 104 40 - 140 Pentachlorophenol ug/L 19

LCSD LCSD

Surrogate %Recovery Qualifier Limits 2,4-Dichlorophenylacetic acid 89 32 - 140

TestAmerica Canton

QC Association Summary

Client: GHD Services Inc.

Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

GC Semi VOA

Prep Batch: 161120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-58034-1	W-151117-TB-WE	Total/NA	Water	8151A	
LCS 180-161120/2-A	Lab Control Sample	Total/NA	Water	8151A	
LCSD 180-161120/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	
MB 180-161120/1-A	Method Blank	Total/NA	Water	8151A	

Analysis Batch: 161161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-58034-1	W-151117-TB-WE	Total/NA	Water	8151A	161120
LCS 180-161120/2-A	Lab Control Sample	Total/NA	Water	8151A	161120
LCSD 180-161120/3-A	Lab Control Sample Dup	Total/NA	Water	8151A	161120
MB 180-161120/1-A	Method Blank	Total/NA	Water	8151A	161120

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Lab Chronicle

Client: GHD Services Inc.

Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

Lab Sample ID: 240-58034-1

Matrix: Water

Client Sample ID: W-151117-TB-WE Date Collected: 11/17/15 14:30

Date Received: 11/18/15 10:00

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	8151A			161120	11/19/15 16:00	CBY	TAL PIT
Total/NA	Analysis	8151A		4	161161	11/20/15 21:42	JMO	TAL PIT

Laboratory References:

TAL PIT = TestAmerica Pittsburgh, 301 Alpha Drive, RIDC Park, Pittsburgh, PA 15238, TEL (412)963-7058

Certification Summary

Client: GHD Services Inc.

Project/Site: 86165-02-07, Penta Wood

TestAmerica Job ID: 240-58034-1

Laboratory: TestAmerica Canton

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	999518190	08-31-16

Laboratory: TestAmerica Pittsburgh

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Wisconsin	State Program	5	998027800	08-31-16

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CHAIN OF CUSTODY AND RECEIVING DOCUMENTS



240-58034 Chain of Custody

CONESTOGA-ROVERS & ASSOCIATES

CHAIN OF CUSTODY RECORD COC NO. SP. 01653 1801 Old Highway 8 Northwest, Suite 114 A.S. (A.C.) PAGE A. OF A.

1801 Old Highway 8 Northwest, Suite 114 St. Paul, Minnesota 55112 United States Phone: (651) 639-0913 Fax: (651) 639-0923

(See Reverse Side for Instructions)

Lab Quote No Lab Quote No (See Back (See B	Project No/ Phase/Task Code: 086 65-62-07		Laboratory Name:	ry Name:	TEST AMERICA	1.04	Lab Location:	N. CAMON	SSOW ID:	
Sample Contrainer Quantity & Analyzis Requested Time Grab (GOC) for Definitions Stee Back of COC) Grab (GO) or Comp (C) With Code Special Requirements: Code Special Requirements: Ordinary Date Time Stee Back of COC) Sulfine Acid (HVD) Stee Back of COC) With Code Special Requirements: Code Special Requirements: Ordinary Code Special Requirements: Co	lame: P ENTA (NOD D		Lab Cont	act:			Lab Quote No:	-	Cooler No:	
With Code 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 2	Location: SIREN, WI		SAMPLE TYPE	ပိ	NTAINER QUANTI	ا عن	ANALYS (See Back of	IS REQUESTED COC for Definitions)	Carrier:	-
Since separate COCs for different TATs): Commany DATE Time Time	try Contact: Mr. Anos Rson O. C. H.O. C. r(s): T. S. R.A. N	8	k ot coc)		/cid (H ₂ SO ₄) lydroxide lioS) 1918W					
20 W & 2 2 2 2 2 2 2 2 2 2	UPLE IDENTIFICATION ainers for each sample may be combined on one line)		cee psc)		Sulfuric A Sodium H (NaOH) Methanoli (OOV)	Other:	- 172	a uswsw		NTS/
Total Number of Containers: A Notes/ Special Requirements: A Notes/ Special Requirements: Total Number of Containers: A Notes/ Special Requirements: Think	1	13/18:30	3	7		J	メ			
Total Number of Containers: Notes/Special Requirements:										
Total Number of Containers: Notes/Special Requirements:										
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Total Number of Containers: Notes/ Special Requirements:		- :								- -
Total Number of Containers: Z Notes/ Special Requirements:										
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Total Number of Containers:			:						-	_
Total Number of Containers: Notes/ Special Requirements:								-		-
Total Number of Containers:										
Total Number of Containers:			:							;
Total Number of Containers: A Notes/ Special Requirements: DATE TIME RECEIVED BY COMPANY DATE [14/15 16:00 1		***				:				
Thus All Samples in Cooler must be on COC DATE That I amples in Cooler must be on COC DATE That I amples in Cooler must be on COC DATE That Company Date 1/4/15 6.00 1		;								
D 2 Days 3 Days 1 Week 2 Week Other: \$7A \ Q \ All Samples in Cooler must be on COC Relinquished BY COMPANY DATE Time Received BY COMPANY DATE COMPANY COMPANY COMPANY DATE COMPANY COMPA	quired in business days (use separate CC	Cs for different TATs):		To	tal Number of Conta		Notes/ Special F	Requirements:		
OUISHED BY COMPANY DATE TIME RECEIVED BY COMPANY DATE (1/14/15 16:00 1 CUx, Cult. 7A 11/13/13	☐2 Days ☐3 Days ☐1 Week	<i>'</i>	NOARD	All Sampl	es in Cooler must b	on COC	-			
012 (AD) 14/15 16:00 1 Clex Cale. TA 11/13/13	RELINQUISHED BY		JATE	TIME		RECEIVED B	٨	COMPANY	DATE	TIME
3.	n Selver ON	C#2 11/1	7/5/	16:00	1.	Culs		X.	11/18/13	(URC)
3.		,	1 -		2.			-		
					3.					
	(La la		בייייי בייייי			1000	- MNTI ()-)	Mary Pulling 1	7 4 4 4	**********

CRA Form: COC-10A (20110804)

GOLDENROD — Sampling Crew

YELLOW - Receiving Laboratory Copy

WHITE - Fully Executed Copy (CRA)

TestAmerica Canton Sample Reco	ipt Form/Narrative	Logir	1#: 59634
	Ch. N.	<u> </u>	Coøler unpacked by:
lient CRA	Site Name		(M14.2-P. 1
poler Received on 11/17/15	Opened on 11/81		Dog an,
edEx: 1st Grd Exp UPS FAS			Other
eceipt After-hours: Drop-off Date/	Time S	Storage Location	
estAmerica Cooler # Packing material used: Bubble		ox Other one Other	
COOLANT: Wellce		one Other	
Cooler temperature upon receipt	·		
IR GUN# 53 (CF +0.1 °C)	Observed Cooler Temp. 2,5 °C Co	orrected Cooler Te	mp.2 C °C
IR-GUN#-48 (CF -0.3 °C) C	bserved Cooler Temp°C Co	orrected Cooler Te	mp. °C See Multiple
	Observed Cooler Temp°C C		
	bserved Cooler Temp°C Co		
Were custody seals on the outside	of the cooler(s)? If Yes Quanti	ty/(😪	No
-Were custody seals on the outside	le of the cooler(s) signed & dated?	Yes	No NA
-Were custody seals on the bottle		Yes	(NO
Shippers' packing slip attached to	• •	Yes) No
Did custody papers accompany th		Yes) No
	hed & signed in the appropriate place) No
	cted the samples clearly identified on		No
Did all bottles arrive in good cond	,	Y _ /	No
Could all bottle labels be reconcil		· (E)	
Were correct bottle(s) used for the Sufficient quantity received to pe		Yes Yes	
Were sample(s) at the correct pH			Not NA pH Strip Lot# HC554612
. Were VOAs on the COC?	1poii 10001pt:		Po Pri Surp Bour <u>Incession</u>
. Were air bubbles >6 mm in any V	OA vials?		
. Was a VOA trip blank present in t		Yes	69
. Was a LL Hg or Me Hg trip blank		Yes	(No)
ntacted PM Date	by	via Verbal Ve	oice Mail Other
ncerning			
CHAIN OF CUSTODY & SAM	DI E DISCOEDANCIES		Samples processed by:
CHAIN OF COSTODI & SAM	The Discress Ancies		
			•
	·		
SAMPLE CONDITION		-	
	were received after the re	commended holdi	ng time had expired.
nple(s)		were received	in a broken container.
	were received wit		
SAMPLE PRESERVATION			` '
		6	1
nple(s)		were furt	ther preserved in the laboratory.

Preservative(s) added/Lot number(s):

Time preserved:

Login Sample Receipt Checklist

Client: GHD Services Inc. Job Number: 240-58034-1

Login Number: 58034
List Source: TestAmerica Pittsburgh
List Number: 2
List Creation: 11/19/15 01:36 PM

Creator: Lonzo, Michael A

oreator. Lonzo, wilchaer A		
Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time.	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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